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FOREWORD

This publication contains four papers, three of which were presented in earlier draft form to the conference of the British Society for Middle Eastern Studies held in Edinburgh during July 1985. I chaired the session, and papers were presented by Dr. Paul Stevens, Dr. Bahri Yilmaz and myself. Dr. Hamauzu, whose paper is also included here, attended the Edinburgh session, and made a valuable contribution to the proceedings through his instructive comments.

All four papers highlight the problems which Middle East exporters face, and the challenges posed for the regions trading partners. Dr. Yilmaz concentrates on the relationship between Turkey and the European Community, pointing out the shortcomings of the Association Agreement, and how the aspirations of many Turkish exporters are being frustrated. My own paper is largely concerned with Egyptian exports to the European Community, which are also subject to trade restrictions through tariffs and quotas. The Egyptian authorities themselves have, however, done little to promote exports of manufactured goods despite the country's large trade deficit.

Dr. Paul Stevens examines the prospects for exports of crude oil, refined products and petrochemicals from the Gulf, providing a pessimistic view of the future marketing potential for Gulf producers. He seriously questions the future of OPEC as an effective cartel. Dr. Hamauzu considers how Japanese petrochemical production has been restructured in order to absorb Gulf products. He also analyses the dilemmas facing the ASEAN countries who have been keen to develop their own petrochemical capacity, but which are threatened by exports from Saudi Arabia and other Arab Gulf oil producers.

All four contributors have considerable Middle East experience, and have been closely concerned with the region's trading

problems. Dr. Yilmaz, a distinguished Turkish economist, is spending two years leave of absence at the University of Munster in West Germany (1984-86). Dr. Paul Stevens was on the staff of the American University of Beirut, before taking up a position as a lecturer in the Department of Economics at the University of Surrey. Dr. Hamauzu is a Senior Researcher at the Institute of Developing Economies in Tokyo. He is spending two years study leave as a Visiting Fellow at the School of Oriental and African Studies at London University (1984-86). My own position is that of Senior Lecturer in the Economics of the Middle East at Durham University.

Rodney Wilson,

October 1985.

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TURKISH EXPORTS TO THE EUROPEAN COMMUNITY

1. THE HISTORICAL BACKGROUND OF TURKISH-EC RELATIONS

Following the application for membership on July 31st, 1959, two months after Greece's application, the Ankara Agreement was signed between Turkey and the EEC/6 in December 1963, and entered into force on December 1st, 1964. This decision of the Turkish government was essentially motivated politically rather than economically. Turkey wanted to take its place in Europe and to be recognized as a member of the European Community. In addition to this, the Turkish side hoped for some economic benefits to strengthen their economic situation and close the gap with other European economies.

This approach was a natural conclusion of Turkey's Western-oriented foreign policy followed during the post-war period which made it possible for Turkey to enter into the Council of Europe, the OECD and the military defence organisation NATO. At the same time, the strategic importance of the position of Turkey (as a corner-stone of the south-eastern NATO flank) also played a dominating role in the reaction of the EEC/6. The "Ankara Agreement" did not anticipate the immediate establishment of a customs union, but Turkey accepted the principles of Common Market rules and looked towards full membership.

The "Ankara Agreement" was to be realized in three stages: The first stage was called "The Preparatory Stage" (1964-73). During this period Turkey benefited from some serious tariff concessions for Turkish agricultural and industrial exports. With the Agreement's entry into force, the EEC agreed to introduce preferential tariff quotas in Turkey's favour for four major agricultural products, tobacco, raisins, dried figs and hazelnuts.

The purposes of the preparatory stage are spelled out as follows:

". . . Turkey shall, with the help of the Community, strengthen her economy in order to be able to take the obligations which will devolve on her during the transitional and final stages" (Article 3).

Financial aid of 175 million European units of account under the First Financial Protocol was granted. For agriculture, the Ankara Agreement foresaw that the Turkish agricultural sector should be adjusted to the Common Agricultural Policy (CAP).

For the second stage the official negotiations were formally opened in December 1968 and the EEC-Turkey Council of Association decided to proceed to the "Transitional Stage". Hence the "Additional Protocol" was signed in 1970, which came into force on January 1973. The "Additional Protocol" included the progressive establishment of a customs union with the EEC. The Community was ready to eliminate custom tariffs on imports from Turkey in the trade of industrial products. Furthermore, the Additional Protocol was intended to regulate the conditions, the detailed rules and the time tables to be implemented during the transitional stage.

As far as trade in industrial goods was concerned, the EEC undertook to

". . .abolish customs duties and charges having equivalent effects on imports from Turkey (Article 9).

Furthermore, the Community would

". . . abolish all quantitative restrictions on imports from Turkey. The liberalization would be consolidated in respect of Turkey". (Article 24).

In the case of agricultural products various tariff concessions were introduced for Turkish agricultural exports to the Community.

In the field of the movement of persons and services, the protocol laid down that

"Freedom of movement for workers between member states of the Community and Turkey shall be secured by progressive stages . . . between the twelfth and twenty-second year after the entry into force of that Agreement . . . ." (Article 36).

Moreover, various social security benefits were to be implemented in favour of Turkish workers resident in the EEC. A second financial Protocol which was signed at the same time stipulated that 195 million European units of account be given to Turkey.

After the Additional Protocol came into force the picture and conditions of world economy changed radically. The quadrupling of oil prices starting in October 1973 has affected the Turkish economy as well as the European Community. During the seventies, the economic situation of Turkey had badly deteriorated and therefore Turkey was not able to satisfy the conditions of the Additional Protocol. Now, in spite of high expectations in the 1960s, the opposition parties and academic circles, particularly the State Planning Organization, began to see that the EEC relations offered more liabilities than advantages for the country. The growing opposition and criticism and the economic realities induced the government to renegotiate the Additional Protocol.

From 1974 onwards, the relations between Turkey and the Community began to deteriorate, especially in the following respects:

1) Quantity restrictions were imposed by the EEC on imports of Turkish cotton yarn and textiles.

2) Erosion of concessions for agricultural products.

3) Improvement of the status of Turkish migrant workers in the Community and their free movement.

But it could be said that from the Community side Turkey found very little understanding of her real economic problems. As a result of the serious economic difficulties which arose in the seventies, Turkey was not able to fulfil her obligations in reducing the scheduled tariffs after 1977. When Mr. Ecevit took over the government in the beginning of 1978, he officially requested a five-year freeze in Turkey's commitments under the Additional Protocol.

After the return of Mr. Demirel to office in November 1979 the government quickly stated their desire to re-establish good relations with the EEC. On the request of the Turkish government the Community prepared a package which was accepted at the second Association Council meeting on June 30th 1980 in Brussels.

The change in the EEC attitude resulted from the political change in the Middle East and was most obviously politically motivated. Mr. Haferkamp, the president of the EEC Commission, stressed the need for additional economic aid to Turkey after the Soviet intervention in Afghanistan and the revolution in Iran. The EEC was interested first of all in stabilizing Turkey and supporting "pro-western forces" in the country. It aimed to "give Turkey the feeling that it belongs to the European family and has privileged relations with the Community".[1]

Now, Turkey was again a favoured partner of the EEC. Consequently, the aid to Turkey was accompanied and completed by the financial assistance of the OECD, notably by the West German government and the European Investment Bank.

Following the military intervention on 12 September 1980 the Turkish authorities have expressed their intention to improve the good relations with the EEC. Brussels has declared the continuation of the association relationship with Turkey.

The general election was held on 6 November 1983, which was the important step towards the re-establishment of democracy in

Turkey. The Motherland party, headed by Mr. Ozal, won the election. He gave the following cautionary statement about Turkey's joining the EEC as a full member, "Turkey should join the EEC if during the negotiations it is in an advantageous position. If the EEC does not accept Turkey's conditions, then Turkey will wait a little longer and should resume bargaining when it is economically stronger".[2]

Since then Turkey-EEC relations have stood still and there has been no essential movement towards full membership.

2. TURKISH FOREIGN TRADE

Before we begin to discuss the trade relations between Turkey and the EEC, it is perhaps useful to review briefly major trends in the foreign trade of Turkey and to give some background information on the external relations of economy between 1965 and 1983.

2.1 Turkey's Trade Policy and Trade History

The development strategy initially adopted by Turkey was designed to achieve a high level of self-sufficiency. For this reason, import-substitution was considered as the most appropriate way to create a strong economy and as necessary for the economic reconstruction of the economy after the establishment of the Republic in 1923. But at the same time, the import-substitution strategy was also in tune with prevailing world opinion on development strategy. The Turkish economy was heavily protected by quantitative restrictions on imports. As a consequence of this policy, the over-valued exchange rates and high protective walls made the production for the domestic market more attractive to home producers. As a result of the import substitution policy followed for so many years, no attention was paid to the comparative advantage in agricultural and industrial production. Under import protection it was more profitable for state and private enterprises as well as for foreign firms operating in Turkey, to produce for the large domestic market than to seize export possibilities abroad. Consequently, the import substitution policy which was implemented over fifty years in Turkey, not only led to an increasing dependence on imports, but also caused the country to face renewed balance of payments constraints. By the beginning of 1980, the need for fundamental economic reform measures and a basic reorientation of economic policy seemed to be inevitable.

On the recommendations of the IMF and the World Bank, which

also put strong pressure on the policy-makers in Turkey to change their development strategy, the government had to recognize that to resolve the country's economic difficulties on a sustained basis would require an integration of the economy into the world market. The policy reform of "shock-therapy" was introduced with a sweeping liberalization and stabilization plan.

Measures of the importance of foreign trade to the economy vary according to whether export/world export and import/GDP or export/GDP ratios are used. In the beginning Turkey's share of world exports decreased steadily between 1950-1980 (besides temporary breaks), from 0.47 per cent in the mid 1950s to 0.22 per cent in the first half and to 0.18 per cent in the second half of the 1970s. The impact of the new policies initiated in January 1980, was remarkable in terms of economic growth, structural transformation and trade expansion. This development was ultimately reflected in the share of Turkey's exports in the world trade. As a result of this fact, the share of Turkey's export in the world trade has rapidly increased, compared with the recent decades, from 0.26 per cent in 1980 to 0.29 per cent in 1983.[3]

On the other hand, the ratio of imports, valued at the formal exchange rate, to GDP has increased from a level of 6.3 per cent over the period 1965-70, to 11.0 per cent during the period 1975/80. It amounted to nearly 17.0 per cent between 1980/83. But the exports/GDP ratio has been lower during the period under consideration. As a percentage of the GDP, exports amounted to 4.5 per cent during the period 1965/70, and only 4.0 per cent in the second half of the 1970s. Between 1980/83 as a result of export expansion, they amounted to almost 9.0 per cent, a significant rise.[4]

The relative increase in the exports/GDP ratio between 1969/1973 was caused partly by the devaluation of the Turkish Lira in 1970, and the world-wide rapid economic growth and the trade expansion at

the beginning of the 1970s. The relative decline in the export/GDP ratio from 1973 until 1980 can be explained by the 1973-1974 quadrupling of oil prices and the world recession of 1974-1975 on the one hand and by the delayed structural adjustment process on the external shocks on the other hand.

Under these circumstances, Turkey had a large trade deficit (besides 1973) in every year since 1950. The size of the deficit, although fluctuating greatly, showed only a slight upward trend before 1974, but since then it has rapidly increased. It is not surprising that exports were able to cover 81 per cent of total imports in 1965, but they financed only 30 per cent of the total imports in 1977 and 36.8 per cent in 1980. After 1980 export/import ratios have considerably improved to 52.6 per cent in 1981 and 62.0 per cent in 1983.[5] The trade deficit has mainly been covered by capital imports and workers' remittances. The major aim of the import-substitution policy has failed; the reduction of trade deficits in order to reduce dependence on external sources of funds. Without international financial aid Turkey would be unable to fill the gap resulting from the continuing increase in the trade deficit.

2.2 Exports of Turkey

In 1983 agricultural sector accounted for 21.5 per cent of GNP. This proportion has been falling slowly from 34.2 per cent in 1963 and 25.5 per cent in 1975. The agriculture sector still employs some 60 per cent of the population and accounted for 33 per cent of exports in 1983.

2.3 Composition of Turkish exports

As is expected, the dominating position of agriculture in the economy is also reflected in the export structure of the country. Consequently, Turkish exports have traditionally been concentrated in agricultural products. Although the share of

agricultural products in total exports has steadily declined during recent decades, agriculture continued to be the determining factor of Turkish exports and it still keeps its strong position. They are dominated by hazelnuts, tobacco, raisins, figs and cotton which accounted for over 15 per cent of total exports in 1983.[6]

On the other hand, the structure of exports by economic destination has radically changed in favour of the industrial sector since 1980. The industrial sector continued to grow steadily and accounted for around 20 per cent in the mid 1960s and it provided 63 per cent of total exports in 1983.[7] The leading products in this boom were labor intensive goods like textiles, clothing, leather and manufactured foodstuffs. Although the rapid expansion in exports was insufficient to close Turkey's trade deficit, it represents a remarkable performance. The description of Turkey's industrial export performance suggests a close chronological parallel with the government's policy towards exports. In other words, the boom period after 1980 coincided with the granting of increased incentives to exporters, while the slow export expansion occured in times of little government encouragement towards exporters.

2.4 Geographical Distribution of Exports

As far as the geographical distribution of exports is concerned, since 1965 the share of the OECD countries has declined considerably at the expense of the Middle East and North African countries. The share of COMECON in total exports remained unchanged. In 1965, the share of Turkish exports going to the EEC accounted for 45 per cent, whereas in the same year the Middle East countries took some 5-10 per cent. In 1973 the share of OECD countries has decreased to 59 per cent (EEC's share increased to 47.9 per cent) and meanwhile the share of the Middle East countries increased to 12.3 per cent. In 1983 the geographical distribution of exports by

country of origin has shifted an increased share of exports to the Middle East and North Africa, in particular to Iraq and Iran. By 1983 Turkey's share of Middle East countries has increased to 46.7 per cent. Since 1980 exports are almost equally divided between the OECD countries and the rest of the world, whilst previously the relation was roughly two-thirds for the OECD and one-third for all other countries.[7]

This switch away from dependence on the OECD and particularly the EEC markets can partly be explained by, firstly, the quantitative restrictions imposed by the EEC on such major Turkish exports as cotton yarn, clothing and certain agricultural products. Turkish industry began to direct exports towards the Middle East and thus new markets were established. The war between Iraq and Iran has also played a dominating role in the increased orientation of Turkish exports to the Middle East. Additionally, the reorientation of Turkish foreign policy towards the Islamic countries since 1976 has left Turkey well placed to expand sales to Arab markets in particular.

Secondly, as noted, this remarkable export performance towards the Islamic world has mainly resulted from the reshaping of Turkish development policy, making the country more outward-looking and world-market oriented. It is hoped that this is the beginning of a steady breakthrough into these regional markets.

2.5 Turkey's Exports to the EEC

As regards the trade relations between Turkey and the EEC with respect to exports, Table I illustrates an interesting relationship. The exports of Turkey to the EEC have slightly lost their relative weight throughout the period under consideration. The share of Turkey's exports to the EEC has declined from 47.9 per cent in 1973 to 3.51 per cent in 1983. Between 1965-1980 the share

TABLE 1 TURKISH EXPORTS TO THE EEC BY COUNTRY (%)

Country	1965	1973	1980	1983
West Germany	15.56	16.80	20.75	14.60
Italy	6.57	8.77	7.51	7.40
United Kingdom	8.91	7.63	3.59	4.31
Greece	1.34	1.48	0.30	0.08
Ireland	0.22	0.19	0.14	1.00
Denmark	1.44	1.14	0.25	3.20
France	4.31	5.74	5.63	-
Benelux	4.97	3.26	1.91	0.22
Holland	2.42	3.12	2.90	2.50
EEC	45.73	47.91	43.00	35.90

Source: Economic Relations Between Turkey and the EEC, SPO, Ankara, 1983, 12-22.

of the EEC in the total exports of Turkey had fluctuated up and down, but the Community has been consistently taking some 45-50 per cent of Turkish exports until 1980. Afterwards the picture has started to change in favour of the Islamic countries. Nevertheless, the EEC remains the most important single market for Turkey's exports.

Among the members of the EEC the Federal Republic of Germany is the prime market. It took over 14.6 per cent of Turkish exports in 1983 (16.0 per cent in 1965 and 17.0 per cent in 1973). In the same year the share of West Germany in Turkey's exports to the EEC was almost 42 per cent. The other substantial markets were Italy with 7.4 per cent (in the EEC 21.0 per cent) and the United Kingdom with 4.3 per cent (in the EEC 12.2 per cent).

In connection with the composition of Turkish exports to the EEC, Table 2 illustrates two further features of Turkish exports to the EEC. Firstly, the share of the EEC in the total exports of Turkey according to the SITC-production groups. Secondly, it shows the economic destinations of Turkish exports to the EEC.

It is noteworthy that:

- In 1982 the share of the EEC in the total exports of Turkey accounted for 30.5 per cent.
- In the same year, the relative importance of exports of miscellaneous manufactured articles (SITC 8) and of mineral fuels (SITC 3) in the world trade were higher than others.
- In manufactured goods (SITC 6) and crude materials (SITC 2) the share had fallen to around 30 per cent. The combined exports of food and beverages (SITC 0+1) took almost 38.3 per cent of total Turkish exports. But the share of these sectors in Turkish exports to the EEC was only 25.5 per cent.
- The share of SITC items 5 and 7 either in the world trade or

TABLE 2 TURKISH EXPORTS: TOTAL AND TO EEC, 1982

SITC	Total	EEC	EEC/Total (%)	EXI/EEC (%)
0-9	5,747,449	1,755,449	30.54	-
0	1,850,914	390,468	21.09	22.20
1	351,400	58,031	16.51	3.30
2	649,400	212,281	32.68	12.09
3	344,830	235,724	68.35	13.43
4	40,345	4,461	10.05	0.25
5	161,724	19,121	11.82	1.08
6	1,569,851	472,623	30.10	26.92
(6.5)	(767,085)	(414,595)	(54.20)	(87.0)
7	301,418	34,125	13.32	1.94
8	477,370	328,596	68.83	18.72
(8.4)	(398,499)	(313,098)	(78.50)	(95.30)
9	197	197	-	-

Source: United Nations, Trade by Commodities, 1982.

EEC trade were still very low.

As far as the share of SITC production sectors in Turkish exports to the EEC are concerned, processed foods and basic manufactured goods (SITC 6 and 8) are leading exports. It is remarkable that the food-processing industry was ranked third amongst all sectors. Nevertheless, it should be pointed out that the only significant industrial sector is textiles and it accounted for 54.0 per cent of the total exports of Turkey. Its share in Turkish exports to the EEC was almost 87 per cent. Meanwhile, the share of the clothing industry in world trade was 78.5 per cent and the Community has been taking 95.2 per cent of the clothing exports of Turkey.

3. STRUCTURE OF SPECIALIZATION AND INTERNATIONAL COMPETITIVENESS OF TURKEY AND IN COMPARISON WITH THE NEW ENTRANTS, GREECE, PORTUGAL AND SPAIN

In the previous part we have examined the recent trade relations between Turkey and the EEC in various important aspects. But this kind of analysis gives only an overall picture of Turkish-EEC trade relations and it is obviously insufficient to examine the trade performance of Turkey with regard to the past and to explore it with respect to the future.

As a result of this fact, it seems to be necessary to take less aggregated trade figures and to use more specific methods for obtaining more reliable and comparable results. For this purpose, the Turkish trade sectors have been broken down into the commodity categories of the SITC.

3.1 Revealed Comparative Advantages

As a first step we attempt to measure the international competitiveness of Turkey with the help of "revealed comparative advantages" (RCA indexes) and to compare it with the new entrants. Taking exports and imports together in consideration RCAs describe a comparative advantage (or disadvantage) in international trade. The disaggregation of exports indicates where the domestic industries display international competitiveness and the disaggregation of imports indicate where there is such uncompetitiveness.[8]

RCA indexes have been calculated using the following formula (Balassa 1965):

$$RCA = \ln \left(\frac{X_i}{M_i} \right) : \left(\frac{\sum_{i=0}^{g} X_1}{\sum_{i=0}^{g} M_1} \right) \quad 100$$

where X and M denote exports and imports, respectively, and the subscript i refers to a sector at one SITC level. The higher (lower) the RCA index is, the more (less) successful is the trade performance in question.

RCA indexes have been computed for 1970 and 1982. They show Turkish trade and the new entrants in the world trade. Tables 3 and 4 report the findings for RCAs according to SITC-product groups. The results can be interpreted as follows:

- Turkey appears in broad terms to be in a strong competitive position with respect to food, live animals (SITC 0), beverages, tobacco (SITC 1) and crude materials (SITC 2). Until 1982 the country maintained its position as far as these sectors were concerned. With regard to the results we can claim that Turkey has a comparative disadvantage in most intermediate and investment goods industries (SITC 5 and 7).

- the initial international competitiveness of Turkey in world trade has increased in food and beverages and has diversified in some manufactured products (SITC 6 and 8), but it has declined in crude materials. As one should expect, it is not a surprise that Turkey resembles quite well the typical pattern of a still less industrialized country and unremarkable that agriculture has a much higher share in total Turkish export (75.2 per cent and 37.2 per cent in the respective years) than the new entrants.

- The careful consideration of the RCAs of the new entrants shows that the initial competitiveness of Greece, Portugal and Spain has remained unchanged in world trade in food and beverages, but it is distinctly lower than in Turkey.

On the other hand, it is interesting to notice that the uninterrupted increase in competitiveness has also continued in

TABLE 7 REVEALED COMPARATIVE ADVANTAGE INDICATORS 1970/82

	GREECE		PORTUGAL		SPAIN		TURKEY	
SITC	1970	1982	1970	1982	1970	1982	1970	1982
0	86.51	65.98	4.98	-77.18	93.07	47.02	150.77	311.32
1	492.28	206.46	241.36	209.63	78.13	38.32	-	723.39
2	69.81	10.78	14.87	7.44	-147.82	-128.68	198.00	95.42
3	-193.03	-97.98	-136.21	-180.13	-88.53	-168.87	-248.97	-198.76
4	7.12	243.71	49.57	136.82	231.60	173.39	-180.17	-50.45
5	-11.99	-47.40	-34.47	-10.15	-69.98	-3.78	-238.71	-141.67
6	60.17	65.09	45.99	80.26	6.60	126.93	-87.15	100.59
7	-346.47	-171.57	-128.04	-64.63	-28.48	35.58	-467.99	-161.30
8	22.91	134.00	99.90	177.28	107.55	70.94	92.40	181.35
9	-	32.97	311.66	193.32	353.38	-99.48	-	15.55

Source: United Nations, Commodity Trade Statistics, various years.

TABLE 4 REVEALED COMPARATIVE ADVANTAGE INDICATORS 1970/82 BY MANUFACTURING SUB-SECTOR

SITC	GREECE		PORTUGAL		SPAIN		TURKEY	
	1970	1982	1970	1982	1970	1982	1970	1982
6.1	37.93	112.90	-85.11	-62.22	136.10	29.10	309.28	22.58
6.2	-112.63	-	4.17	-139.95	178.28	51.05	35.37	-116.31
6.3	-98.62	-	348.71	406.54	244.45	104.13	-	110.40
6.4	-190.62	-124.70	-69.52	-5.00	-62.10	-86.53	-	-175.86
6.5	14.82	51.09	107.46	79.92	85.44	14.48	166.21	142.36
6.6	-79.69	120.34	24.69	19.89	22.09	38.95	37.97	152.65
6.7	25.31	52.29	-199.42	-201.92	-135.54	2.36	-177.22	-96.35
6.8	83.54	84.95	-262.82	-254.48	-49.99	-28.29	27.61	-182.50
6.9	-179.33	53.54	-18.00	0.15	94.96	-0.27	-242.42	-44.81

Source: United Nations, Commodity Trade Statistics, various years.

all three countries in manufactured goods (SITC 6 and 8) as well as in animals and vegetable oils (SITC 4). Hence, it should be pointed out that the share of manufactured goods (SITC 6 and 8) in total exports is lower in Greece, Portugal and Turkey than in Spain. Additionally, Spain is the only country among the others which achieved a competitiveness in the world trade in machinery and transport equipment (SITC 7).

A closer look at the RCAs with regard to manufactured goods (SITC 6 and 8) of Turkey and the new entrants indicates, however, that apart from differences important similarities among these countries exist.

It is noteworthy that:

- As far as Turkey is concerned the country exhibits competitiveness in world trade in four industries and has still kept its initial position since 1970 unchanged. These include textiles (6.5), leather (6.1), wood products (6.3) and non-metallic mineral manufactures (6.6). Moreover, the results indicate that Turkey has lost with respect to world trade its initial competitiveness in rubber manufactures (6.2) and non-ferrous metals (6.8). In the case of Greece and Portugal the results do not provide a clear-cut picture: both countries seem to be particularly competitive with regard to textiles and non-metallic mineral manufactures (6.6), but Portugal has advanced more in the wood manufactures. The picture is quite mixed within the other SITC 6-sub-sectors. On the other hand, Spain has lost its initial competitiveness in four industries (leather, furniture, rubber products, wood production and textiles) but it has been able to increase its competitiveness in the world trade of some manufactured sub-sectors, such as non-metallic mineral manufactures (6.6) as well as iron and steel (6.7).

- the findings for (SITC 8) are presented in Table 4. According to the RCAs for miscellaneous manufactured articles, as might be expected, Turkey appears to be highly competitive in two sub-sectors, clothing (8.4) and furniture (8.2). Portugal and Greece exhibit international competitiveness especially in clothing. It seems, however, the initial competitiveness of Greece has declined in footwear (8.5) and travel goods (8.3). In contrast, the RCAs of Spain show a totally different picture than the others. Although the RCA values have become smaller in the case of SITC sub-sectors (besides furniture), Spain reveals an international competitiveness in the most of the consumer goods industries. Therefore, the RCAs identify Spain as the most industrialized country among the four.

3.2 Comparative Export Performance (CEP)

As is known, RCA indexes describe the trade patterns that have taken place. They are based on actual export and import flows. It is quite possible that the results could be distorted by trade policy interventions, especially in forms of tariff and non-tariff barriers on imports. We have, therefore, also estimated the structure of international competitiveness for Turkey and for the three which are only based on relative export share. Then we will be able to find out whether the findings of CEPs support our earlier RCAs results or not. The measure used for calculating "comparative export performance" - CEP - coefficients is as follows:

$$CEP = \frac{X_{ij}}{X_{iw}} \Big/ \frac{\sum_{i=o}^{g} X_{ij}}{\sum_{i=o}^{g} X_{iw}}$$

where the subscripts j and w refer to the country in question and the world, respectively. An index value above unity means that the

particular sectors have a greater share in total exports of the individual country than it has in the world trade as a whole; thus, the country in question possesses a relative advantage exporting products of these sectors. The opposite holds for index values below unity.

The results for CEPs are reported in Table 5. After careful consideration of the findings, we can draw the following conclusions, firstly for the main production groups (SITC 0-9) and secondly for the manufactured sectors (SITC 6 and 8) as well.

The following features are particularly noteworthy regarding the SITC-production groups from 0 - 9:

- To begin with, Turkey appears to lead in the export of food and live animals (STIC 0), beverages, tobacco (SITC 1) as well as crude materials (SITC 2). At the same time, it is interesting to notice that the comparative export performance of Turkey has increased in all sectors, especially in manufactured sectors (SITC 6 and 8). Greece appears to have relative advantages in the export of food and beverages as well as crude materials.

  It can be easily recognized that Turkey had more pronounced changes in exports of animals and vegetable oils (SITC 4) and in manufactured products (SITC 6 and 8) during the time under consideration. As far as the main producing sectors are concerned, Turkey and Greece have generally the same export structure. On the other hand, Portugal also possesses a relative advantage in exporting food, beverages and crude materials, but her advantage has declined since 1970. However, it has increased remarkably with respect to manufactured products (SITC 6 and 8). In the case of Spain, the results show that the country has lost the relative weight of her initial advantages in food, beverages, animals and vegetable oils whereas the country has been able to

TABLE 5 COMPARATIVE EXPORT PERFORMANCE INDICATORS 1970/82

	GREECE		PORTUGAL		SPAIN		TURKEY	
SITC	1970	1982	1970	1982	1970	1982	1970	1982
0	2.47	2.44	1.20	0.54	2.78	1.14	3.78	3.56
1.	12.5	4.21	5.17	3.80	2.34	1.54	9.34	4.85
2	2.11	1.23	1.67	1.72	0.49	0.52	5.03	2.08
3	0.29	1.28	0.68	0.52	1.59	0.87	0.18	0.71
4	1.29	4.57	2.41	3.39	10.36	3.33	0.16	1.67
5	0.83	0.51	0.84	0.88	0.60	0.75	0.18	0.29
6	1.26	1.67	1.55	1.67	0.76	1.60	0.32	1.52
7	0.04	0.12	0.24	0.38	0.55	0.73	0.01	0.14
8	0.41	1.46	1.33	2.31	1.50	1.13	0.11	0.91
9	-	0.27	0.92	1.13	0.09	0.20	-	-

Sources: United Nations, Commodity Trade Statistics, various years.

improve its export performance with respect to manufactured products (SITC 6 and 8). CEPs also prove that Spain in fact is the only country which has already achieved a relative advantage in exports of machinery and transport equipment (SITC 7). In short, in the case of the four countries the patterns of RCAs based on import-export ratios, are generally confirmed by the CEPs.

- As Table 6 indicates, the combined manufactured exports regarding the basic manufactured goods (SITC 6) and miscellaneous manufactured articles (SITC 8) have generally increased in all four countries, but partly in different branches. It seems that Turkey has advanced more in the furniture, textiles and non-metallic mineral products, and finally in iron and steel (6.8). Greece has also achieved a remarkable export performance in the fields of textiles, leather, non-metallic mineral products and non-ferrous metals. Portugal possesses a relative advantage in manufacturing and exporting of leather, rubber products, wood manufactures, textiles and non-metallic mineral manufactures. In the case of Spain we find the five industries, namely, leather, rubber products, wood products, iron and steel and non-ferrous metals at the top.

- In the exporting of SITC 8 Turkey has only a relative advantage in clothing industry (8.4). In addition to this, Greece and Portugal have achieved a greater advantage in the footwear industry. On the other hand, Spain possesses a relative exporting advantage in most of the miscellaneous manufactured articles, especially footwear, furniture and travel goods.

Finally, it can be argued that there is much more similarity with regard to CEPs among the four countries either in main production groups or in manufactured industries (except investment goods).

TABLE 6 COMPARATIVE EXPORT PERFORMANCE INDICATORS 1970/82, BY MANUFACTURING SUB-SECTOR

	GREECE		PORTUGAL		SPAIN		TURKEY	
SITC	1970	1982	1970	1982	1970	1982	1970	1982
6.1	6.89	5.10	0.33	1.47	2.68	3.82	0.31	0.03
6.2	0.57	-	1.10	0.26	2.37	2.28	0.34	0.24
6.3	0.27	0.91	9.44	12.43	2.77	2.28	-	1.41
6.4	0.15	0.52	0.41	0.91	0.28	0.75	-	0.15
6.5	0.30	3.41	3.85	4.68	0.82	1.06	0.98	4.55
6.6	0.53	3.40	3.55	2.08	0.72	2.28	0.31	2.63
6.7	1.79	0.85	0.19	0.26	0.33	1.86	0.08	1.14
6.8	1.91	1.99	0.11	0.18	0.60	1.27	0.41	0.33
6.9	0.24	0.70	0.97	1.01	1.19	1.51	0.04	0.54

Sources: United Nations, Commodity Trade Statistics, various years.

This similarity between Turkey and Greece is closer than in the case of Portugal and Spain. Spain still maintains her relative advantages in the "early industries" (such as textiles, clothing, footwear, leather) but during the 1970s and in the early 1980s Spain has already achieved a favourable export performance in world trade in some intermediate goods, including machinery and transport equipment (SITC 7) industries, while the other three countries have already revealed themselves mainly in consumer goods.

3.3 Trade Overlap

Finally, we intend to consider the overall importance for Turkey and the new entrants as well as for the EEC of intra-industry in comparison with inter-industry specialization in international trade. Therefore, the following formula (Finger and Derosa 1979) has been used for calculating coefficients of country-specific "trade overlap", (TO):[9]

$$TO = \frac{2 \sum_{i=o}^{9} \min (X_i, M_i)}{\sum_{i=o}^{9} (X_i + M_i)}$$

where X_i and M_i refers to exports and imports, respectively, of each of the SITC 0-9 production sectors i, and "min" defines the magnitude of the total trade which overlaps in dollar terms. The coefficient can vary between 0 and + 1. The closer it comes to unity, the more intra-industry specialization there is. The lower the coefficient is, the more trade takes the form of inter-industry specialization.

The TO results are presented in Table 7. As is expected the TO coefficients for EEC are higher than for any other compared country and it almost comes to unity. This underlines that the

TABLE 7 TRADE OVERLAP COEFFICIENTS FOR TURKEY, GREECE, SPAIN, PORTUGAL AND EC 1970, 1982[1]

Country/Region	1970	1982
Greece	0.4095	0.4331
Portugal	0.6568	0.4960
Spain	0.5696	0.6266
Turkey	0.2627	0.3239
EC	0.9164	0.9640

1. For method see the text.

Source: United Nations, Commodity Trade Statistics, New York, various years.

EEC has more intra-industry specialization in trade. Spain comes closer to unity, but it is still far away from the TO coefficient which is found for the EEC. The TO coefficients for Turkey and Greece are much lower than the others and their trade mainly reflects inter-industry specialization. In other words, both countries have a lower proportion of differentiated products. Portugal occupies an intermediate position among others.

4. CONCLUSIONS

The preceding interpretations of RCAs and CEPs as well as TO results allow us to make some predictions for general tendencies regarding the future trade relations of Turkey with the EEC in an enlarged Community. The current world situation is so uncertain that it is difficult to predict anything with confidence even for the short term. Nevertheless, it is important to try to identify in general terms the problems which would be posed by Turkish EEC entry in order to make a preliminary assessment of its feasibility.

First of all, we have stated that Turkey and the new entrants have shifted their export structure at different levels from primary commodities to consumer goods. After the completion of the second enlargement, the competitive pressure among these countries will increase in those "sensitive sectors", in which they are in a strong competitive position, such as food, beverages, animals and vegetable oils, leather, textiles, clothing, footwear, non-metallic minerals, etc.

One of the possible effects of the second enlargement on Turkish exports could be that the trade-impacted interest groups of member states would put strong political pressure on the governments to make frequent recourse to safeguard provisions to reduce the import of such "sensitive" goods. Other possibilities include support for the domestic industries in order to avoid increases in unemployment figures. Such attitudes are already reflected with respect to textile exports from Turkey into the EEC since 1977. As we mentioned above, textiles are the only major industrial export in which Turkey is highly competitive, so it will obviously want unhindered access to the EEC. But on the contrary the EEC has imposed some quantitative restrictions on imports of cotton yarn and some textile productions. So it would

not be surprising if measures of this kind were extended to other products in which Turkey exhibits international competitiveness vis-à-vis the enlarged Community. If this were to happen, as is most likely, and Turkey is unable to become a full member of the EEC in the next decade, then without doubt Turkish industrial exports to the EEC would suffer considerably from the second enlargement.

Under these circumstances, for Turkey the only remaining possibility is to expand exports to non-EEC countries. Another possibility is to change its specialization from inter-industry to a more intra-industry type. The latter could stimulate more differentiated consumer goods exports in order to attain a secure foothold in the market of the EEC/12.

On the other hand, the Association Council adopted an Agreement in which all agricultural trade between Turkey and the Community would be freed by 1987. This might positively affect the exports of Turkish agricultural products into the EEC. But this can only be realized if Turkey could satisfy two main conditions:

The first condition is that the Turkish producers would need to avoid the weaknesses throughout the domestic and external marketing chains. They also need to improve quality and packing which are required by the wholesale importers of Western Europe.

The other condition is to raise agricultural output and to increase the productivity in this sector by using a more efficient technology and new methods. This will largely depend on the realization of reforms to change the present agricultural structure in Turkey.

APPENDIX

SITC	Sectors
0	Food and live animals
1	Beverages and tobacco
2	Crude materials
3	Mineral fuels
4	Animal and vegetable oils
5	Chemicals
6	Manufactured goods
7	Machinery and transport equipment
8	Miscellaneous manufactured products
9	Others

SITC: 6

6.1	Leather and leather manufactures
6.2	Rubber manufactures, nes.
6.3	Cork and wood manufactures
6.4	Paper and paper manufactures
6.5	Textile yarn, fabrics and related products
6.6	Non-metallic mineral manufactures
6.7	Iron and steel
6.8	Non-ferrous metals
6.9	Manufactures of metal, nes.

SITC:8

8.2	Furniture
8.3	Travel goods
8.4	Clothing
8.5	Footwear

FOOTNOTES

1. Financial Times, May 7, 1980.

2. Anavatanpartisi, Genel Ekonomi Sorunlari: Targut Ozal'in Broşurleri, Ankara, 1983, 8.

3. The Turkish Economy, 1984, TUSIAD, Istanbul, 1984,

4. The Turkish Economy, ibid, 91.

5. The Turkish Economy, ibid, 92.

6. The Turkish Economy, ibid, 97.

7. OECD, Survey of Turkey, 1962, Paris, 22.

8. BALASSA, Bela "Trade liberalization and 'Revealed' Comparative Advantage", The Manchester School of Economic and Social Studies, 33, 1965, 99-123.

9. Finger, I. Michael, Dean A. Derosa, "Trade Overlap, Comparative Advantage and Protection", in Herbert Giersch (ed.), On the Economics of Intra-Industry Trade, Symposium 1978, Tubingen 1979, 213-240.

RODNEY WILSON
EGYPT'S EXPORTS: SUPPLY CONSTRAINTS AND MARKETING PROBLEMS

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EGYPT'S EXPORTS: SUPPLY CONSTRAINTS AND MARKETING PROBLEMS

The aim of this paper is firstly to examine the changing commodity composition of Egypt's exports, and to identify major trends. The consequences of these trends for Egypt's future foreign exchange earnings potential will be discussed. The desirability of a restructuring of Egypt's exports will be considered, and the feasibility of such a change assessed through the identification of supply constraints.

The second part of the paper is concerned with the marketing of Egyptian exports. Changes in the destinations for exports will be discussed, and the potential of the country's major markets to absorb increased sales assessed. Tariff and quota restrictions which are applied to Egypt's current exports, or which could be applied to future exports, will be identified. Egypt's ability to secure trade concessions from bodies such as the European Community will be assessed taking account of the strengths and weaknesses in its bargaining position.

Before examining these issues, however, it seems pertinent to consider the past and present stance of the Egyptian authorities towards exports and exporters.

Official Attitudes to Exports

It is at first sight surprising that the Egyptian government does not have an export policy. Since the 1950s the state has tightly controlled the foreign exchange market. Major exports such as cotton, textiles and petroleum have either been directly administered by the state, or by state-owned bodies. Comprehensive development planning was introduced in the 1960s, and a complex bureaucracy created to supervise most economic activities. Yet there has been no serious attempt to establish export-orientated industries in the state sector. Indeed priority has been given to production for the domestic market.

with exporting viewed as a kind of residual means of disposing of any accidentally emerging surpluses.[1]

Little has been done to encourage private sector exporters, in fact they have often been discouraged from selling abroad. The private sector was of course depressed following the nationalisation measures of the Nasser era, remaining activity largely being confined to construction and small domestically-orientated businesses. Although under the open-door policy instigated by Sadat, free zones were established where, it was hoped, export-orientated industries would be established, these have not been successful. Few foreign private investors were prepared to participate in manufacturing ventures even on a joint venture basis,[2] and the value of exports from the free zones is minimal. Bureaucratic delays were partly to blame, and there was much confusion over the interpretation of ministerial directives.

Similar problems have constrained agricultural exports. A number of private agro-business units have been established to produce fruit and vegetables for exports. These private initiatives have achieved some measure of success in penetrating overseas markets, especially with early potatoes and oranges. There have been endless wrangles with the authorities, however, over the exchange rates which should be used to convert private export proceeds into Egyptian pounds. These have resulted in some local businessmen bypassing official channels completely.

Egypt's visible trade deficit has widened considerably in recent years, from LE 1.2 billion in 1980 to almost LE 5.0 billion in 1983. Prospects for oil exports are problematic, partly because of uncertainty over prices on the world petroleum market, but also due to the failure to discover significant quantities of oil reserves outside the Gulf of Suez region. Invisible earnings are also threatened, especially remittances, largely as a consequence of the recession in the Gulf. Even without this, however, the long term trend has been for the demand

for Egyptian migrant workers to fall, as Gulf citizens are given priority in employment. In addition Gulf employers have increasingly recruited non-Arab labour from the Far East in preference to Arabs who are more likely to be socially disruptive.

The Mubarak government has finally come to realise that a sound export base is imperative, if Egypt is not to become even more dependent on the beneficence of the United States Congress for balance of payments support. Such support has a political price, and the vacillations of Congress on foreign policy matters inevitably makes the United States' economic dependants feel somewhat vulnerable. The International Monetary Fund and the World Bank have also encouraged the Egyptian authorities to give priority to export policy. In the case of the IMF, it is realised that if Egypt does not take urgent measures to correct its balance of payments situation, ever greater amounts of financial support will be requested. If exports cannot be expanded, then Egypt's foreign exchange situation may become desperate, and drastic action will be required. The IMF itself may bear the brunt of the criticism for the inevitably unpopular action, as happened with the food riots in 1977. It is recognised by all parties that the longer the balance of payments is allowed to deteriorate, the harsher the remedial measures which will be needed.

Composition of Exports

From the mid nineteenth century until the mid 1970s, Egypt was heavily dependent on the export of one crop, cotton.[3] Raw cotton exports dominated, as the local cotton textile industry was largely orientated towards supplying the domestic market rather than exporting. Nevertheless some attempts were made to export cotton yarn, cloth and even made up clothing in the 1960s, as such downstream diversification resulted in more value accruing to the Egyptian economy than was the case with unprocessed exports. There was no overall strategy,

however, to increase exports of manufactured cotton goods, even on the part of the nationalised textile industry, whose main aim was to meet production targets on which managerial remuneration partly depended. Little thought was given to marketing. With the country's domestic market expanding in any case due to population growth, there was little need to look abroad. As the internal market was protected through tariffs and foreign exchange quotas, it was easier to supply than more competitive international markets.

Although Egypt became a net food importer in the 1960s, exports of some foodstuffs increased, notably onions, potatoes and citrus produce. There was no contradiction in this, as it was economically justifiable to cultivate intensively high value fruit and vegetables on Egypt's fertile soil, and import grains which were much lower value crops. In the nineteenth century there was a loss of the area devoted to foodstuffs when cotton cultivation was expanded, so such a situation had a precedent. Grains were included in the cotton rotation, and efforts made to increase yields. Hence in the end there was no real loss of food production. With fruit and vegetable exports, however, the authorities had a much more ambivalent attitude. There was some disquiet that land and water resources which could have been used for grain production were used for export production. In addition, as shortages of commodities such as onions developed in the domestic market, there were popular pressures to divert export produce to meet internal demand. Rising domestic prices for fruit and vegetables led to similar demands being made. As a consequence in some official quarters the fruit and vegetable exporters were regarded as profiteers, rather than businessmen, making a useful contribution to the country's export earnings.

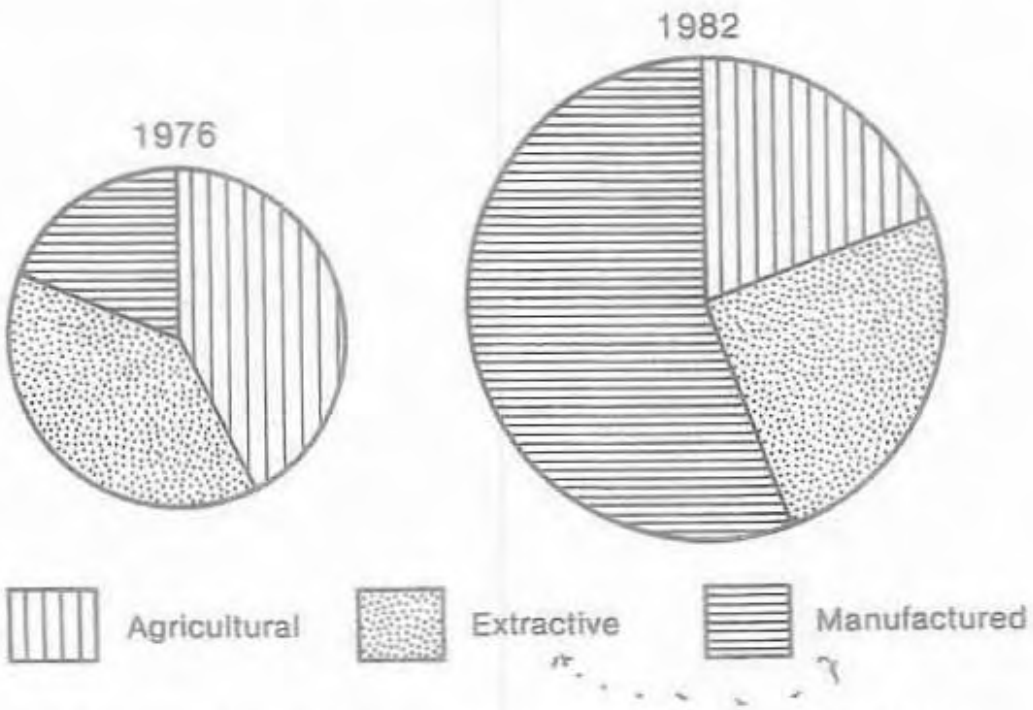
Egypt emerged as a net exporter of oil in 1977 following the redevelopment of the Gulf of Suez oilfields.[4] These were returned

from Israeli occupation under the Kissinger accords. Prior to the loss of the fields in 1967, production was only modest, but by the time of their return, the much higher oil prices meant more intensive exploitation was feasible. Egypt, not being an O.P.E.C., member was unconstrained with regard to production level or price. Hence it was decided to expand production as rapidly as possible, even though this meant depletion would be accelerated. It was thought that it was best to exploit the resource when market conditions were favourable, rather than conserve for an uncertain future. Furthermore Egypt was in urgent need of additional sources of foreign exchange as a result of its growing dependence on food imports, and the Sadat government's desire to expand the economy rapidly and modernise Egypt's dated infrastructure.

The value of oil exports trebled over the 1975-77 period largely as a consequence of volume increases. The price rises of 1979 also contributed significantly to the rise in petroleum earnings. Dollar prices trebled on the spot market where Egypt made a large proportion of its sales. With the devaluation of the Egyptian pound at the same time, prices in terms of local currency rose even faster, by almost five fold. Earnings, however, rose seven fold over the 1978-80 period, indicating the contribution of continuing volume increases to Egypt's petroleum receipts.[5]

The growing significance of oil revenue for export earnings is indicated in chart 1. The share of extractive exports, principally oil, increased rapidly over the 1976-82 period, while the shares of agricultural produce and manufactured goods declined. In absolute terms however, exports of both agricultural produce and manufactured goods increased in current values, although in constant prices, there was no increase. Egypt has therefore become to a considerable extent a petroleum economy as far as its exports are concerned. Changes in

Chart 1 SECTORAL SHARES IN EGYPT'S EXPORTS



Data source : United Nations INTERNATIONAL TRADE STATISTICS

its trade balance are largely determined by developments in the international petroleum market. A vulnerability to world cotton price trends has been replaced with a greater dependence on oil prices. In this situation the present government has even less ability to influence prices than its predecessors in the nineteenth century. Egypt was a major exporter of particular types of long staple cotton, and its supply position influenced world prices. The country is only a medium sized oil producer, however, with price changes largely resulting from the actions of O.P.E.C., or developments in the North Sea and Alaska, which the Cairo authorities can only observe.

Processed Exports

As most countries develop economically they export an increasing proportion of manufactured goods. Apart from O.P.E.C. members, most states with high levels of per capita gross national product export a diverse range of goods with a significant degree of domestic value added. The only exceptions are states with small populations such as New Zealand or Iceland which export primary produce, but even in these instances there is some local processing. New Zealand exports dairy produce, not milk, and Iceland increasingly exports fish which has been filleted and frozen. There are no middle income states of Egypt's population size which are solely dependent on primary produce exports.

Despite the extent of Egypt's industrial base, it remains more reliant on exports of primary products than ever. Yet increasing exports of processed goods would bring significant benefits not only from the point of view of foreign exchange earnings, but also for the economy more generally. More local value added could increase income, and have positive multiplier effects beyond the manufacturing sector. In order to survive in export markets, processing industries have to be competitive, and the drive for greater efficiency is often in itself a useful learning process. Productivity gains can be realised, and

which is common amongst natural resource producers.[7]

Table 1 illustrates how the share of finished and semi-finished goods in total exports has fallen in recent years. These adverse trends are largely a consequence of the increasing significance of crude oil exports over the period. The increasing tendency to export manufactured goods rather than unprocessed commodities, which Nasser encouraged, has been reversed. Egypt is as dependent on the exports of unprocessed goods as it was in the nineteenth century.

Oil Product Exports

Although Egypt has substantial oil refining capacity, it is primarily geared to the domestic market. Less than ten per cent of refined products were exported in 1977, and under fifteen per cent in 1982. Table 2 shows that refined output increased by over 9 million tons over the 1977-82 period, but exports of refined products rose by only 3 million tons. Egypt's demand for its own refined products is growing at over 15 per cent per year, partly due to the rapid increase in car ownership amongst the middle classes, but also encouraged by a cheap energy policy, which keeps domestic petroleum prices well below international market levels. The cheap energy policy is popular, however, amongst virtually all groups of Egyptian consumers, including the poor as it also applies to kerosene which is used for cooking stoves and heating. The riots in 1977 were not only a result of announced food price rises, but also because of increases in the price of kerosene.

The buoyant domestic demand for oil products has two adverse consequences for petroleum sector exports. Firstly it has resulted in much of the expansion in refining capacity being used to satisfy domestic market requirements. Refinery capacity would have needed to be expanded at an extremely rapid pace if exports were to account for the major portion of output. Secondly the increased domestic demand

the quality of output raised. These improvements need not only be confined to exports, but might also benefit Egyptian consumers. Economies of scale can be realised with larger production runs beyond the requirements of the domestic market, and these can be advantageous for domestic consumers through lower prices.

In addition there may be spin-offs for small-scale businesses through sub-contracting, even though these businesses might lack the resources to export themselves. The small-business sector is the most buoyant in the Egyptian economy, with a large increase in the number of workshops in recent years.[6] It is these kind of sub-contracting linkages that have resulted in exports having such an impact on economies such as Taiwan and South Korea, even though only a small number of firms are directly involved in overseas sales.

The linkages between the export sector and the rest of the Egyptian economy have weakened rather than strengthened in recent years. Although oil exports have been a useful source of foreign exchange, they have brought few other benefits to the Egyptian economy. Employment is minimal in the oil sector, and many of the more skilled workers are foreigners. There is no oil equipment industry, hence all supplies have to be imported. This implies minimal spin-offs for local economic activity, and no technological benefits. The sole benefit from oil exports has been financial, in terms of government oil revenue, and the contribution to the balance of payments. Oil has not aided the development of Egypt's productive capacity, in fact it may have retarded its growth. There has been less need to urgently develop new export industries, and the oil revenue has enabled the authorities to maintain official and parallel exchange rates at a higher level than would otherwise have been possible. Egyptian industry would have been more competitive, however, had the exchange rate been lower. The country has suffered from some of the symptoms of the "Dutch disease"

TABLE 1 SIGNIFICANCE OF FINISHED AND SEMI-FINISHED GOODS IN TOTAL EXPORTS

Year	Value in LE millions			Share of total exports in percentages	
	Finished goods	Semi-finished goods	Total exports	Finished goods	Semi-Finished goods
1975	159.8	88.8	548.6	29.1	16.2
1976	142.4	77.1	595.4	23.9	12.9
1977	155.3	90.5	668.4	23.2	13.5
1978	144.9	147.5	679.8	21.3	21.7
1979	193.3	209.2	1287.8	15.0	16.2
1980	151.8	208.8	2132.2	7.1	9.8
1981	155.3	225.9	2262.9	6.9	10.0
1982	148.1	168.5	2184.1	6.8	7.7
1983	208.7	176.7	2250.3	9.3	7.8

Source: National Bank of Egypt, Economic Bulletin, Vol.XXXVII, No.1, 1984.

TABLE 2 EXPORTS OF CRUDE OIL AND REFINED PRODUCTS IN RELATION TO PRODUCTION

Year	Exports of crude oil (LE millions)	Exports of refined products (LE millions)	Crude oil as proportion of total (%)	Exports of crude oil (mn tons)	Exports of refined products (mn tons)	Production of crude oil (mn tons)	Production of refined products (mn tons)	Consumption of crude oil (mn tons)
1977	119.1	42.7	73.6	4.0	1.0	24.1	10.3	8.5
1978	140.7	47.9	74.6	4.3	1.3	24.4	11.1	10.0
1979	396.5	138.9	74.0	5.2	1.4	25.1	11.4	10.1
1980	1233.3	137.3	90.0	8.0	1.5	28.0	12.6	11.8
1981	1233.5	223.8	84.6	10.0	1.5	32.5	13.2	11.8
1982	1211.2	235.5	83.7	10.2	2.0	33.4	13.5	12.0
1983	1070.2	330.0	76.4	-	-	36.0	-	-

Sources: National Bank of Egypt Economic Bulletin, Vol.XXXVII, No.1, 1984, and Economist Intelligence Unit Quarterly Economic Review of Egypt, Annual Supplements 1983 and 1984.

reduced the crude oil surplus available for export. Domestic consumption of crude oil rose by almost 50 per cent over the 1977/82 period, a trend which if it continues, will result in little crude oil being left over for export by the 1990s. Exports of crude oil increased over the 1977-82 period as production levels rose, but it is doubtful if production can be increased further, or even sustained at its current level.

Exports of Cotton Goods

In some respects the situation in the cotton sector is analagous to that of oil, although a higher proportion of cotton is exported in manufactured form, either as cotton yarn or cotton fabrics. The cotton textile industry in Egypt is essentially geared to the requirements of the domestic market, from which cheaper foreign competing products such as those from India or the Far East are excluded. The industry is primarily orientated to a low income market however, and some low-grade short staple cotton is actually imported for use in the industry, rather than using locally produced high-grade long staple cotton. Significant quantities of cotton textiles were first exported in the 1960s, but to a large extent exporting was regarded as a means of disposing of surplus production, rather than a key objective.[8]

Although there was an increasing tendency to export manufactured cotton goods rather than raw cotton in the 1960s, the proportion of cotton yarn to total cotton sector exports did not rise overall after 1975 as Table 3 shows, despite some fluctuations from year to year. These largely reflected relative price changes, as prices of raw cotton in international markets fluctuated to a greater extent than prices for manufactured cotton goods.[9] Exports of manufactured cotton goods rose only modestly in volume terms over the 1975-83 period as Table 3 shows. The rapid rise in terms of local currency values in

TABLE 3 EXPORTS OF COTTON AND MANUFACTURED COTTON GOODS IN RELATION TO PRODUCTION

Year	Total value of cotton sector exports (LE millions)	Raw cotton (%)	Cotton yarn (%)	Cotton fabrics (%)	Raw cotton exports (metric cantors)	Cotton yarn production (000 tons)	Cotton fabric production (million metres)
1975	280	71.7	22.5	5.8	2936	181	782
1976	230	67.4	25.1	7.6	2917	193	536
1977	276	66.1	24.9	8.9	2743	210	595
1978	262	50.2	34.2	15.6	3062	213	604
1979	453	58.9	28.7	12.4	3132	219	616
1980	488	60.7	27.8	11.5	3114	236	633
1981	468	68.4	23.2	8.4	3904	239	170*
1982	403	71.0	21.5	7.5	-	245	180*
1983	487	63.4	28.2	8.4	-	229	216*

Note: * 000 tons.

Source: National Bank of Egypt Economic Bulletin, Vol.XXXVII, No.1, 1984

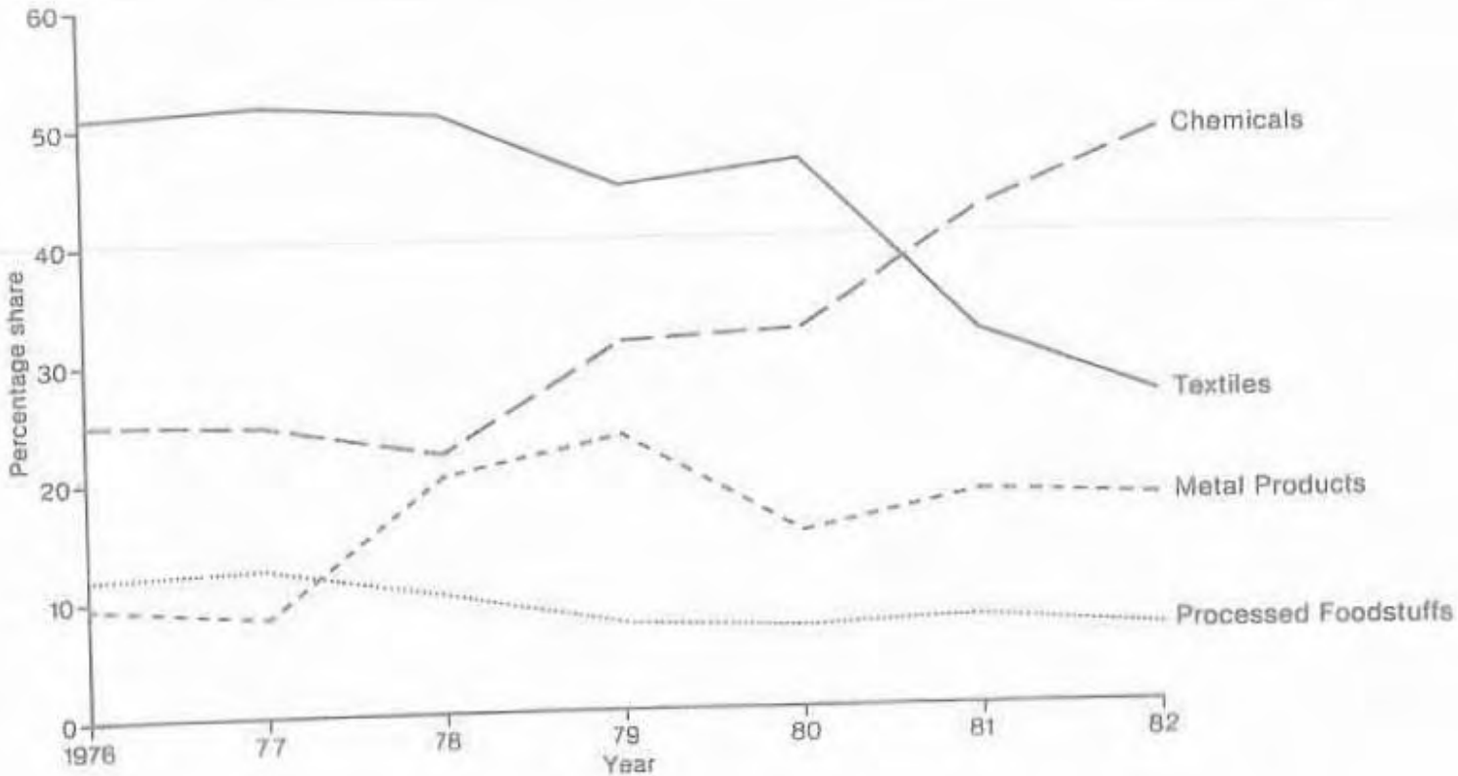
1979 was solely due to the devaluation of the Egyptian pound.

Two factors appear to have constrained the growth of exports of manufactured cotton goods, but both were ultimately due to the lack of investment in the nationalised textile industry. The first was that output could barely keep pace with the growth in domestic demand, partly a consequence of population increase, but also due to higher living standards. The second constraint was the low quality of much of the output which meant marketing was a problem. Poor finish, out-of-date specification, and an insufficient awareness of international trends in textile design, meant the exports had only a limited appeal in overseas markets. As Egypt cannot compete internationally in the cut price end of the market in textiles because of its relatively high wage costs in comparison to South Asia or China, its only course is to use its high quality cottons to manufacture "up-market" products. Such a strategy, however, implies rigorous quality control, and an innovative approach towards product development.

Trends in Manufactured Exports

Chart 2 shows how the overall state of the major categories of exports of manufactured goods has changed over the 1976-82 period. Textiles accounted for the major proportion of manufactured exports until 1980, but its share has since declined, reflecting the stagnant state of the cotton manufacturing industry. In contrast the share of chemicals has risen, most of this being accounted for by refined products, the prices of which rose significantly in 1980 following the earlier oil price rises. Exports of metal products are largely accounted for by aluminium ingots from Egypt's Soviet-built smelter. Processed food exports largely comprise bleached rice, dehydrated onions and some canned foodstuffs, but Egypt's food processing industry is limited, most domestic consumers preferring fresh produce.

Chart 2 COMPOSITION OF EGYPTIAN EXPORTS OF MANUFACTURED GOODS



Data source : United Nations INTERNATIONAL TRADE STATISTICS

Although it might seem desirable to export a diversified range of manufactured goods to minimise vulnerability to price fluctuations in particular markets, such a strategy is not a realistic possibility for Egypt. Prospects for exports of refined products are not encouraging, as although Egypt is nearer European markets than Gulf oil producers, its limited production potential reduces the scope for economies of scale. Furthermore Western Europe has excess refining capacity itself, and price prospects for refined products are discouraging. Expansion of metal product exports is also unlikely, given Egypt's limited mineral resources, and the increasing competition from other metal processors. The country's factor endowment means it enjoys no comparative advantage in this type of capital intensive industry. Therefore future exports hopes must largely be dependent on expanding textile sales, and marketing more processed foodstuffs. These activities create much local employment and make good use of the country's replenishable resources.

Export Finance

In Egypt it is much easier to finance imports than exports. Even the major state-owned banks prefer to finance imports, despite the social desirability of encouraging exports. There are several reasons for this. Firstly, the imported goods can be offered as security, and because many imports are in short supply, if they are sequestrated as a result of payments default, the bank will have no problem in disposing of the merchandise. In contrast exports cannot be so easily resold. Secondly, supplier credits are often arranged on imports by the western exporters, which means the Egyptian banks can offset part of the finance. Thirdly, import finance represents the main business of the western banks allowed to operate under the open door policy, including those joint ventures established with Egyptian banks. Fourthly, exports are thought to be more risky to

finance, as private sector Egyptian suppliers are usually small concerns, not credit-worthy multinational companies. Fifthly, state sector firms are limited in their borrowing, and they are discouraged from taking the kinds of risk which exporting inevitably entails. At the same time, many have been starved of state financial assistance, as the government strives to keep its own expenditure in check.

The basic problem is that Egyptian exporters require medium- and long-term finance, while importers need only trade credit facilities such as letters of guarantee and acceptances. The latter represent the kind of services the banks are both willing and able to provide. They earn a fee related to the size of the transaction with little risk involved. In contrast export funding in the Egyptian context is often project finance, involving long-term lending for product development, the improvement of production facilities or the establishment of marketing networks. Implementation is often time-consuming, and there is no certainty that such efforts will be successful in the end.

It was because these difficulties were recognised that the Export Development Bank of Egypt was established in 1983.[10] This government-supported bank aims to provide funds for project finance and export promotion both by itself, and through co-financing arrangements with Egyptian and foreign banks.[11] A government sponsored venture with an authorised capital of LE 100 million, and a paid-up capital of LE 50 million, it is 40 per cent owned by the National Investment Bank, with Egypt's four major nationalised banks, the National Bank, Bank of Alexandria, Banque du Caire and Banque Misr subscribing the remainder of the capital.[12] The bank started business in January 1985 providing finance for export-orientated projects on the proviso that 30 per cent of output will be exported by the fifth year of operation. The bank also grants refinancing facilities

to other banks providing export finance, and it will support Egyptian firms which need to give supplier credit to export customers.

The Export Development Bank of Egypt also plans to launch an export credit guarantee facility in 1986, and has obtained funding from the World Bank to provide initial cover. The London-based merchant bank, Samuel Montagu and Company, is providing advice on the facility, which is to be modelled on the United Kingdom's Export Credit Guarantee Department's schemes.[13] Payments will be guaranteed to exporters against default by overseas purchasers if a modest insurance premium is paid to cover all normal commercial risks. There is some debate about whether payments defaults due to political factors should be covered, but this has not been decided. Other matters which remain unclear include the role of the Export Development Bank of Egypt vis-à-vis the newly-formed Egyptian Export Promotion Centre. The latter is not primarily involved in finance, but it has taken some interest in the question of credit guarantees, and wanted to establish a scheme of its own.

Direction of Exports

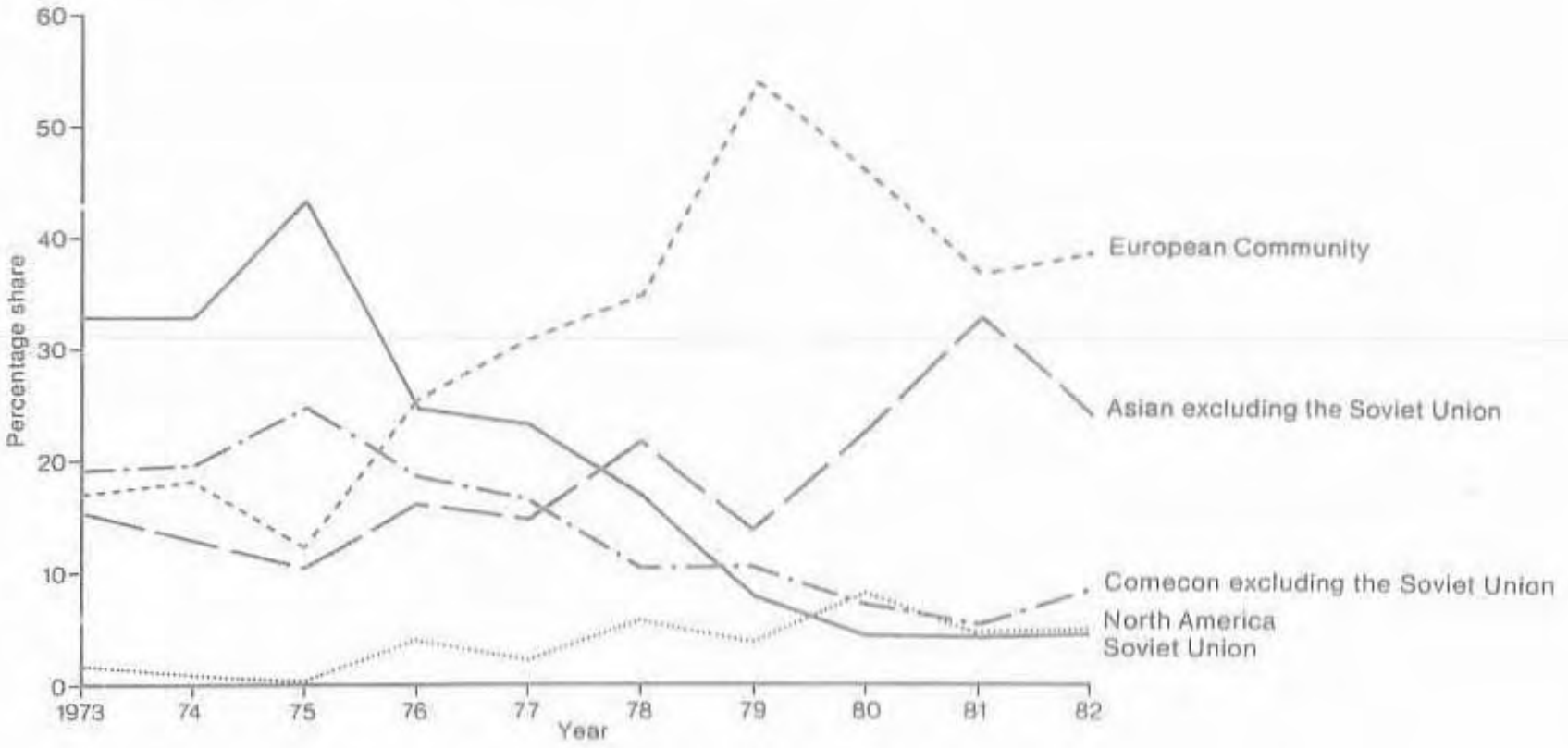
Historically Egypt's major export markets were the countries of Western Europe, especially the United Kingdom. Egyptian cotton was sent to the mills of Lancashire for manufacturing into textiles, and after the United States' civil war, Egypt became the major source of supply. The connection with Lancashire was so close that one south Lancashire town, Warrington, had its streets named after Egyptian cities (Cairo Street, Suez Street, Port Said Street, etc.). These trade links continued until the 1950s, but the strained relations with the United Kingdom and France following the Suez crisis of 1956 resulted in a redirection of trade. Nasser encouraged trade links with the countries of Eastern Europe, including the Soviet Union. The latter, together with Czechoslovakia became the major markets for

Egyptian raw cotton in the 1960s. Trade was on a virtual barter basis, with raw cotton and some manufactured cotton goods exchanged for industrial machinery and military supplies. Under the bilateral payments agreements concluded with most Comecon states, the aim was for exports and imports to balance, although surpluses and deficits could be carried over from one year to the next.[14] Inconvertible currency balances could not, of course, be used to finance trade from third parties.

Not surprisingly, most industrial exporters preferred earning convertible currencies, even including state-owned cotton textile firms. The management argued that if they were allowed to earn convertible Western European currencies, and use some of the proceeds to purchase new machinery from West Germany or Japan, the industry could be modernised, and exports further expanded. There was dissatisfaction with some of the machinery obtained from Eastern Europe through barter deals, and the management preferred to be able to "shop around" rather than being tied to one particular source of supply.

It has, however, proved difficult to expand export sales of raw cotton and cotton goods to the European Community, and most of the increase in exports to the latter in the 1970s was accounted for by petroleum. Chart 3 shows how the share of exports destined for the European Community increased rapidly after 1975. The peak in 1979 was largely accounted for by the oil price increases of that year, which increased the value of exports to the Community in relation to exports to other areas where non-oil commodities were more significant. The subsequent fall in the share going to the European Community partly reflected the recession there, but it was also a result of the fall in spot oil prices on the Rotterdam market where much Egyptian oil was sold. The increasing share of exports

Chart 3 EGYPT'S MAJOR EXPORT MARKETS



Data source : United Nations INTERNATIONAL TRADE STATISTICS

going to Asia is largely accounted for by Japan, which purchases both Egyptian oil and raw cotton. Increased exports to the Far East partly compensated for the decline in exports of manufactured goods to the Arab Asian countries.

Regional Exports

During the Nasser period there was an attempt to encourage trade with other Arab states. The motivation was largely political, as Nasser's Egypt was regarded as the leading nation in the Arab World, especially by the Cairo government. It was thought that pan-Arab trade ties should reflect the country's new political alignments, as economic relations were treated as a dimension of Arab nationalism. Consequently Egypt was one of the main instigators of the Arab Economic Unity agreement which was drafted in 1956, and approved by the Arab Economic Council of the Arab League in 1957.[15] The agreement only came into force in 1964 when a Council for Arab Economic Unity was established, which agreed to form an Arab Common Market on 1st January 1965. The states of the Arabian peninsula and the Magreb countries were unenthusiastic about redirecting their trade as the agreement implied, and the Arab Common Market was confined to four states, Egypt, Jordan, Iraq and Syria. Kuwait agreed to join, but its parliament refused to ratify the agreement. Libya, however, joined the Arab Common Market in 1977, followed by Mauritania in 1980 and South Yemen in 1981.[16] Egypt was suspended in 1979 following its peace treaty with Israel.

In practice the Arab Common Market had little impact on Egypt's trade, even though tariffs on goods traded between members were abolished by 1971, three years ahead of schedule. The market could have been a useful means of ensuring wider regional sales of Egyptian consumer durables, but in reality even with a tariff advantage, Egyptian goods were overpriced in relation to competing products from outside the market, and of generally poorer quality. Egypt's

infant industries also had supply problems, as they could scarcely satisfy domestic market demand. Some Egyptian-assembled cars were sold to Iraq, but there was no continuity of orders, and even if there had been, it is doubtful if the orders could have been fully met.

Apart from consumer durables, the Arab Common Market members all produced similar industrial goods, which limited trading possibilities. Of course increased competition is seen as one of the major benefits of a customs union, but the Arab Common Market countries were reluctant to see any of their carefully-fostered infant industries driven out of business. Hence despite the abolition of tariffs, quotas and payments restrictions remained. There was little inter-Arab trade in textiles, Egypt's major manufactured export, as all member states had their own textile industries. The scope for trade creation was limited given these constraints. Indeed there was little trade diversion of the kind the Kuwaitis feared, with higher-priced Egyptian goods being substituted for lower-priced competing products from the outside world due to tariff preferences. Other non-tariff restrictions, and Egypt's poor supply position precluded this from happening.

At the time of its suspension from the Arab Common Market, less than 11 per cent of Egypt's exports went to other Arab states, of which less than half was to market members. Egypt, however, was not only suspended from the Arab Common Market as a result of its peace treaty with Israel, but the other Arab nations at the Baghdad summit agreed to boycott Egyptian exports. Nevertheless, although some states such as Syria, Iraq, Jordan and South Yemen applied the boycott rigorously from 1979 onwards, other states did not comply, notably Sudan, although this is not surprising, given its geographical location and dependence on Egypt. More interestingly, Saudi Arabia did not apply the boycott, and Egyptian export sales to the kingdom doubled between 1978 and 1982 with large consignments of Egyptian

citrus produce and vegetables being shipped into Jeddah.

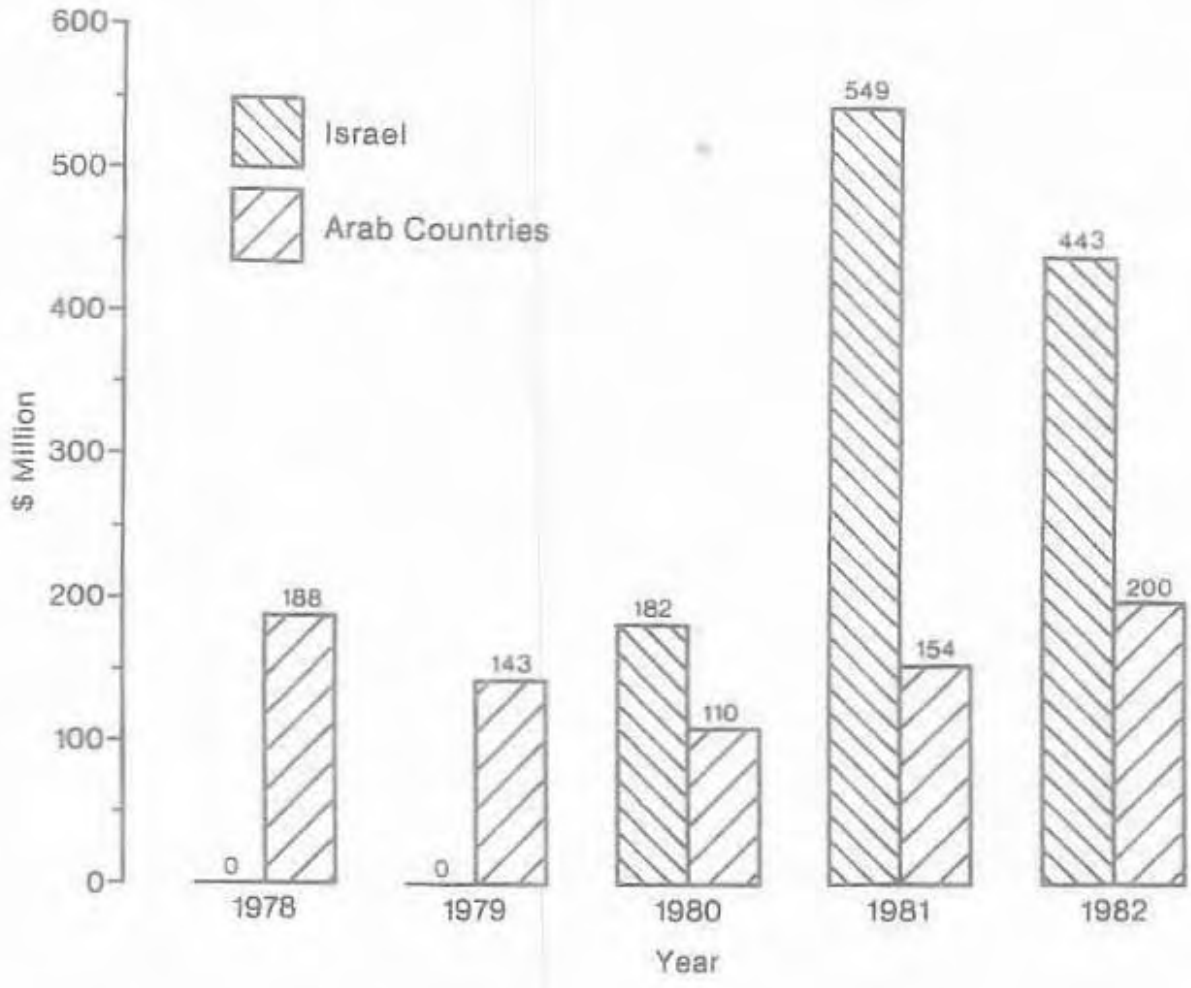
At Camp David, Egypt agreed to supply Israel with oil from its Gulf of Suez fields as part of the normalisation of relations between the two states. Oil sales started in 1980, and from then on the value of Egyptian exports to Israel exceeded the value of its exports to the Arab World as chart 4 shows. This trade has proved useful to Egypt, especially as Israel was persuaded to pay the full market price. At first Israel had demanded a reduced price for oil purchases from Egypt. The Israelis argued that the oilfields had only become operational for Egypt due to their Sinai withdrawal, and that some Israeli capital had been invested in the Sinai fields in the post 1967 period when they were under Israeli control.

Marketing of Exports

Egypt has a locational advantage vis-à-vis Middle Eastern markets, especially that of Saudi Arabia, its Red Sea neighbour. Fruit and vegetables are already marketed in the Hijaz region of Saudi Arabia, as already indicated, but in Riyadh and Eastern Province the supplies largely originate in Jordan. There may be some scope for exporting processed foodstuffs, although local consumers in Saudi Arabia tend to favour fresh produce. The Saudi Arabians have in any case established some processed food industries themselves. It seems doubtful if Egypt will be able to compete in the Saudi Arabian consumer durables market, however, with well established Japanese and Italian suppliers, and prospects for textile exports are also limited. Saudi Arabia has no textile industry, but Far Eastern and South Asian suppliers have long dominated the market.

As the scope for export sales in the Middle East is limited, it seems that Western Europe will remain the country's major market. Egypt's economic relations with the European Community have been difficult, however, despite the good political relations of recent

Chart 4 EFFECT OF PEACE TREATY WITH ISRAEL ON EGYPT'S REGIONAL EXPORTS



Data source : United Nations INTERNATIONAL TRADE STATISTICS

years, and the Co-operation Agreement signed between the European Community and Egypt in 1977.[17] Although this agreement provides for trade liberalisation, in practice it has been restrictive as far as exports of processed goods are concerned. There are no restrictions on Egypt's major export to the European Community, crude oil, but there are quotas on exports of refined products to safeguard European refinery capacity. Yet Egypt would prefer to export refined products, as this would increase foreign exchange earnings, and have more favourable spin-off effects for the country's economy.

The same difficulties arise with exports of cotton goods. Although the European Community is prepared to admit unlimited quantities of raw cotton, Egypt's exports of cotton yarn and cotton fabrics are restricted under the multifibre agreements. These arrangements are to provide for "orderly marketing" and prevent dumping, but in reality they are largely designed to protect Europe's remaining textile production. Hence Egypt continues to sell some of its textiles to the COMECON countries while selling raw cotton to the European Community, even though it would prefer to earn convertible currency for its textile exports.

Egyptian exports of citrus fruit and vegetables are subject to the European Community's variable levy system whereby additional tariffs are applied if surpluses emerge within the Community of competing produce. Egypt's major export is early potatoes, which can be marketed in February and March, long before the European crops are ready. There is, however, competition from Cypriot growers and from the Canary islands. The market for citrus produce is even more competitive, especially with the accession of Spain and Portugal into the European Community.

There is little doubt that Egypt has difficulty competing with Far Eastern and South Asian garments producers in Western markets for

cut price clothes given its relatively high wage costs. As already indicated, Egyptian producers would probably be better advised to improve their image, and aim at a high-income luxury market. Well produced shirts or trousers, for example, which were one hundred per cent Egyptian cotton could command a high price in the European Community if they were aimed at the appropriate section of the market.[18] The Egyptian textile industry may be well advised to enter direct contracting arrangements with European quality retailers, who would specify the product design and standards required. The retailers are often qualified to give technical advice regarding production methods, but they should not be regarded as suppliers of capital. The Egyptian producers would have to find the investment funds themselves to modernise their production operations, and tighten quality control. Nevertheless this should not be too great a task if markets are assured and there are good profit possibilities. The multifibre restrictions should not pose a problem, as these apply to the quantities of cloth and numbers of garments, not the value of output. Hence even within existing quotas it would be possible for Egypt to increase its foreign exchange earnings appreciably.

Conclusions

Egypt's export receipts cover less than half its import payments, and the country remains chronically short of foreign exchange. There have been considerable efforts to promote exports in recent years, but the volume and value of export sales remains disappointingly low. Nevertheless both export composition and the market for Egyptian exports have changed considerably. Agricultural exports, including raw cotton, have declined in relative importance, while exports of petroleum have increased. The share of manufactured goods has also fallen, which is particularly worrying for the Cairo government, given the uncertain outlook for petroleum.

As in the case of the United Kingdom, the growth of petroleum exports over the 1977-82 period has proved to be a mixed blessing. The earnings from petroleum and aid inflows have enabled the government to postpone difficult decisions on the restructuring of state sector industries. At the same time there are few incentives for private sector exporters, and the complex exchange rate system only confuses matters. The open door policy has been a failure as far as attracting foreign investment into export industries is concerned. Certainly the establishment of free zones can hardly be considered a substitute for a well planned export strategy. Yet there are industries which have been shown to have promising export prospects, providing a conducive environment is provided by the state.

The destinations for Egypt's exports reflect changing political circumstances. The share of exports marketed in the Comecon states has fallen dramatically, while exports to the European Community have risen. Yet the Commission in Brussels has done more to hinder than to encourage Egyptian exports, in spite of the co-operation agreement signed in 1977. The Arab boycott has resulted in a loss of export earnings, but some states have adhered to it more than others. In any case, sales of petroleum to Israel now earn over twice as much as exports to the Arab World. Although initially Egypt only agreed with reluctance to such sales, they are now actively encouraged as a result of the difficult situation in world petroleum markets, and the desire to maintain petroleum export volume.

With its rapidly increasing population and rising expectations Egypt is becoming more import dependent. The role of exports to pay for these is becoming crucial, especially as the future of remittances is doubtful. The Mubarak Government has adopted a pragmatic trading stance in response to these pressures. Ideological considerations are a luxury Egypt can no longer afford in its trading relationships.

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PAUL STEVENS

ARAB DOWNSTREAM EXPORTS - PROBLEMS AND PROSPECTS

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Background

The key date for this paper is the First Oil Shock of 1973-74. After this date, for reasons to be explained below, the Arab oil exporters decided to establish downstream industries such as large-scale export refineries and petrochemical plants.[1] In order to judge the implications of this move, which is the purpose of this paper, it is necessary to understand the reasons behind the change. To understand the reasons, a context is required and that context is the international oil market between 1945 and 1973.

The key aspects of this context are given in Table 1.

TABLE 1 MIDDLE EASTERN AS A PERCENTAGE OF WORLD OIL PRODUCTION, EXPORTS AND REFINERY CAPACITY EXCLUDING NORTH AMERICA AND THE COMMUNIST BLOC

	1939	1960	1971
Crude production	20	53	56
Crude exports	LOW	56	67
Refinery capacity	19	14	8

Source: G. Jenkins, Oil Economists Handbook, Applied Science Publishers, 1984; British Petroleum Statistical Review of the World Oil Industry, 1971.

The result of the expansion in crude exports shown in Table 1 was that the oil-producing economies of the Arab world found their foreign exchange sources and government revenue sources increasingly dominated by crude oil exports.[2] This dominance created the perception of three problems within the region.

The first was the feeling of vulnerability. Both the volume of exports, and the 'price' which fixed revenue were determined unilaterally

by the large international oil companies. Thus the key determinant of economic activity and development prospects within the countries was determined outside of the control of the governments. For example, in the late 1950s on two occasions the oil companies reduced the tax reference price of crude without consulting the governments. This led directly to the formation of OPEC in 1960 in an attempt by the governments to restore the price cuts.[3]

The second perceived problem was that of revenue instability. During the 1950s and 1960s, country export volumes fluctuated widely because the oil companies (faced with large excess crude producing capacity) manipulated supplies between sources in order to minimize excess supply and hence price competition.[4] With steadily declining prices the volume instability translated into revenue instability.

The final perceived problem concerned a loss of value added. Put simply, a barrel of refined products sold for more than a barrel of crude oil. Therefore whichever country refined the crude received that value added. Following 1945, refinery capacity was switched away from the oil fields to the European and Japanese markets,[5] as emerges clearly from Table 1. Thus as the capacity location moved, so too did the recipients of the value added.

The Means

Around 1973, two events occurred which enabled the Arab oil producers to take action on their desire to move downstream rather than simply continue with the rhetoric. The first was the price rises of 1973. This meant that the governments now had in apparent abundance the revenue necessary to build the very expensive plant required for a downstream move. The second event of significance was that the Arab oil-producing governments began by a process of nationalization or participation to take over a de jure control of the oil operating companies within their borders such as the Iraq Petroleum

Company, the Kuwait Oil Company, ARAMCO, etc.[6] After 1945, increasing amounts of refinery capacity were being built away from the oil fields in the consuming countries. There are many explanations for this switch in location ranging from economic to political to technical factors.[7] However, the underlying reason for the switch was relatively simple. The oil companies were the disposers of the crude oil. As disposers, they could choose where to locate their refineries. Hence as the governments took over control they also took over (at least at a de jure level) the disposition of the crude. Hence the refinery location decision effectively switched from the companies to the governments. There was a further side-effect of the government take-over which concerned the use of associated gas. Associated gas is produced as a by-product of producing crude oil. Before the crude can be transported, the gas must be separated and 'disposed of'. Up to the government take-over, the majority of the gas was 'disposed of' by burning it. This had always been a major point of contention between companies and governments since the governments viewed this gas as a natural asset of the country. Hence, once control was asserted, governments were faced with the need to find an alternative means of disposal which would not waste the gas. One such means of disposal was to use the gas as a feedstock into petrochemical plants or to fuel crude refineries.

The Motives

Thus the changes of the early 1970s provided the governments with the means to move downstream (revenue and gas feedstock). All that was then needed was the motive to make such a move and it is to the motive that the paper now turns. Given that the object of the paper is to assess the moves downstream, understanding of the motives is crucial in order to provide criteria by which the move can be judged. It is of little value to argue for example that the move

failed because the projects failed to show an accounting profit if profitability had not been the central motive.

From extensive reading of official documents together with discussions with those involved in the decisions, four motives for the downstream moves can be identified. These were; a desire for diversification, for economic development, for profit and finally for control of the international oil industry. There is a problem in ranking these motives in order of importance because they tend to differ in importance between countries. However, in general the order in which they are presented approximates to the average. The next stage is to elaborate on each.

The desire for economic diversification is well founded in the economic development literature. Much has been written about the problems and difficulties of dependence on a single primary export which arise either because of deteriorating terms of trade[8] or because of export instability.[9] While these are contentious areas in development economics, it was felt in the Arab World that such a dependence was indeed damaging to the oil-producing countries during the 1950s and 1960s. Diversification, it was felt, meant above all, developing new types of exports which would be achieved by the moves downstream. While the export of refined products represented little by way of diversification, petrochemical exports certainly did.

Rightly or wrongly, economic development has become synonymous with industrialization.[10] This has partly been because of observation of the experience of the 19th Century and partly because of the theoretical constructs of much of development economics. The building of refineries and petrochemical plants was seen as industrialization and hence development. It was anticipated that the building of such plants would create forward and backward linkages within the economy, thereby promoting economic activity. In fact, it effectively followed

a strategy of unbalanced growth,[11] despite official statements about the need for a 'balanced' approach to development.

To an economist at least, the motivation to make profits is self-evident. It was generally believed for a variety of reasons[12] that the economic advantage after 1973 had swung to locating processing plant in the oil-producing countries. The costs of building and operating such plant in the industrialized countries were rising due to more stringent pollution controls and higher land costs. On the other hand, plants in the oil-producing countries were not faced with rising costs from such sources, and indeed their costs were expected to be lower because of access to (virtually) free gas fuel and feedstock, together with the economies of scale. Thus for these reasons, it was assumed by the governments that these plants would actually make accounting profits.

The final motivation for the move downstream concerned a desire to gain control of the international oil industry. Before the 1970s, the world's oil industry was effectively controlled by the multinational oil companies. This control accrued to the companies by virtue of their ability to restrain the existing excess capacity and thereby minimize price competition.[13] One reason why the companies could exert such control was by virtue of their vertically integrated structure. The companies produced oil, transported it, refined it and marketed it all within their own affiliates. Thus they could ensure that only enough crude was produced to meet refinery needs. This was crucial because if more crude had been produced, this would have greatly increased competition in the crude oil markets. When the governments took over control, it appeared as though the vertically integrated structure had been destroyed as the companies lost their sources of 'owned' crude. In fact this did not occur until the Second Oil Shock of 1979-80.[14] However, given this perception, governments could only

restore vertical integration (and its control of competition) by themselves moving downstream.

The Plans

Hence by 1973, the countries concerned had both the means and the motives for the move downstream. The plans[15] were in two directions. First there were plans for large scale export refineries. The details of the plans are presented in Table 2.

TABLE 2 CAPACITY OF EXPORT REFINERIES IN THE MIDDLE EAST IN 1975 (thousand b/d)

	Actual	Planned
G C C	1449	3223
Iran-Iraq	1236	1565
Rest	305	761
Total	2990	5549

Source: MEEC, Refining in the Middle East Until 1985, Middle East Economic Consultants, Beirut, 1976.

Effectively, the plans represented an increase in capacity of 186 per cent. Second, there were plans for petrochemical plants with heavy emphasis on the basic chemical building blocks. There are many published sources giving details of the plans but since many of them were subsequently dropped, there is little point in going into detail.

These plans for refineries and petrochemicals were characterized by two important elements. First, they were made by individual governments with no attempt at coordination. Indeed, when many of the plans were being laid in 1974, often governments were actually unaware that similar plans were being made in neighbouring countries. It was only when a number of joint seminars on the topic were held that the full magnitude of the planned duplication became apparent.

Second, the plans were made with no reference to market demand studies at a time when, because of the economic recession and the increased oil price, there existed enormous world wide excess capacity. It was simply assumed that the market for the output would be there. This absence of marketing plans may seem strange when it is remembered that a number of the proposed projects were to be joint ventures with major international companies. However, this oil company involvement had its own motivation. By 1974, it seemed that the oil companies had lost or were about to lose their access to 'owned' sources of crude oil as a result either of nationalization or creeping participation. Furthermore, following the Arab oil embargo, fears were growing about the political reliability of contracted crude sources. In this context, the companies were anxious to secure access to crude and crude products, hopefully on preferential terms and if this meant involvement in some economically dubious projects, then so be it.

As a consequence of these two characteristics (no coordination and no market studies), by the mid 1970s many of the plans were looking increasingly unrealistic. At the end of 1975, the fifteen ethylene projects on the books in the Middle East represented about 40 per cent of EEC capacity, which at that time was operating at only 62 per cent.[16] At the same time the planned new refinery capacity represented about 45 per cent of Western European throughput when Western European refineries were operating at 60 per cent.[17] Once this situation became apparent many of the plans were quietly dropped. For example, by 1984 actual Middle East refining capacity was only 3.56 million b/d[18] compared to the 1975 'forecast' of 8.54. The planned increase in 1975 of 186 per cent had translated itself into an increase of only nineteen per cent. Only Saudi Arabia persevered with the plans although even these were on a somewhat reduced scale.

As a result of these developments, much of the export capacity

has recently begun to come onstream although exact figures are difficult to come by since many plants are in (or only just out of) the commissioning stage.

The Present and Future Problems

The remainder of the paper turns to examine the main problems associated with this newly emerging capacity in an attempt to evaluate its likely success or failure in the light of the criteria established earlier.

The first problem concerns the fact that the excess world capacity in refining and petrochemicals evident in the mid seventies remains in place. In 1983, refinery capacity utilization in North America was 74 per cent, in Western Europe 64 per cent and in Asia and Australasia 68 per cent.[19] The pattern for petrochemicals was similar. This continued excess capacity has and will generate two problems, price competition and the erection of trade barriers.

One of the assumed advantages of the Middle East-located downstream plant was the economies of scale. Thus the larger the plant built, the lower the unit costs. However, in order to obtain these economies of scale (and hence lower costs) the plant must operate at or close to capacity. If the plant operates below capacity, because the very large fixed cost is spread over a smaller output, unit costs rise exponentially. However, if there is excess capacity in the world vis-à-vis demand, the only way to sell the full capacity output is by shading on price. Of course the problem is that this applies to everyone and hence the result is normally a price war. This in turn usually leads to the producers selling the same volume as before but at a significantly lower prices. In the absence of an increase in demand to soak up the excess capacity or a scrapping of excess capacity, the only mechanism to avoid price wars is by

cartelization. Cartels, however, are unstable and tend not to survive.

The second problem associated with the existence of excess capacity is the erection of trade barriers by existing producers, generally as a result of lobby pressure from refiners and those involved in petrochemicals. Such pressure exists and is growing to prevent the Middle East product exports from market entry. This is fuelled by claims from the existing producers of 'dumping' (i.e. selling below 'true' cost) as a result of the extensive subsidies offered by governments to their new plants. Already, the EEC has considerable protection mechanisms in place with a 13.4 per cent tariff after a minimal quota is reached. At the same time there is considerable pressure (especially in the USA) for taxes on imported refined products.

The only solution to this problem of protection is to negotiate bilateral agreements to allow market access. A notable example is the current negotiations between the EEC and the GCC. In this situation, the GCC would appear to have a fairly favourable negotiating position since the GCC currently allows in EEC imports with negligible tariffs.[20] The GCC is also helped by lobby pressure from the companies involved in the joint venture projects. Whether the result will be improved access remains debatable. An argument which is gaining ground in the OECD and may inhibit such access warns of the dangers of the OECD increasing dependence for its basic chemical building blocks on external sources, particularly sources which are viewed as politically uncertain.

The implications of these two problems (price competition and trade restrictions) in terms of the motives discussed earlier relates to the motive of profitability. Both will reduce the potential for profitable operation by reducing margins, which in any case are of doubtful magnitude.

The prospects for the disappearance of this excess capacity

are by no means good. Some OECD capacity is being scrapped but demand remains stagnant. For oil products, a conventional wisdom has emerged that demand will pick up sharply by the early to mid 1990s. However, it is possible to construct an argument which throws considerable doubt on such a view of the future.[21]

A second broad problem related to the downstream moves is that one form of dependency is exchanged for another form of dependency. In terms of oil product exports this is clearly the case since the arguments against dependency on crude exports apply equally to products. This is not the case with petrochemicals but here the issue concerns another form of dependency. To build and operate the petrochemical plants, the governments have had to import technology either via the joint venture partner or by hiring through licensing. To date, there are few or no signs of the assimilation of development of the technology within the contries. Thus the plants are likely to remain dependent on the whims of the suppliers of the technology. Hence the motive of reducing dependence by moving away from crude exports looks distinctly thin. In the future this situation is unlikely to change unless there is a major rethink on education policy without which no local R and D is likely to occur.[22] Such a rethink is unlikely at present given the political ramifications.

The third general problem concerns the impact of the downstream moves on economic development. This can be divided into two aspects, diversification and linkages with the rest of the economy, both of which were key motives behind the downstream decision.

The diversification argument was always thin. Indeed, the statements which were heard in the mid Seventies from many officials that downstream development was needed for when the crude ran out were clearly nonsense. A better argument was possible with petrochemicals as a genuine diversification although one can argue about the performance

of projects with such doubtful financial viability. Now that the plants have actually been built then this questioning of financial viability is less important since the capital costs are now 'by-gones' and viability requires only the covering of operating costs. There is still however, the problem of erratic gas availability because of fluctuations in crude production levels.

It is in the area of linkages with the rest of the economy where the real development myth can be seen, at least for the GCC states. Forward and backward linkages are really very minimal. Apart from the gas input, most of the other inputs are imported (including the labour) while the majority of output is intended for export. In effect, the plants are simply enclaves within the existing economy. For some of the other states with larger domestic markets, then the linkage possibilities may be greater although the forward linkages from petrochemicals tend to be high-tech activities and again there is a danger of superimposing an industrial sector on the society which has neither relevance for, nor a real impact on, genuine development.

The final problem in assessing the downstream moves relates to the degree of control it provides over the international oil market. Quite simply, no such control has accrued to the Middle East producers as a result of developing refinery capacity. Since (and because of) the Second Oil Shock, the international oil industry has become much more competitive. After the take-over of control in the first half of the 1970s, observers expected the break-up of the vertically integrated structure of the oil industry because it was now the governments which controlled disposition. This did not happen and the companies effectively continued to dispose of the crude on the governments' behalf essentially because (at the risk of oversimplification) governments were unwilling to accept the responsibility.[23]

After the Second Oil Shock, the governments got braver and took over the crude marketing. Therefore a relatively competitive crude market developed despite OPEC's attempts to restrain the competition. The subsequent downstream moves by the Middle East producers were far too small to restore any semblance of vertical integration. Furthermore, the export of oil products has helped to weaken OPEC's tenuous grip over the market because there is no OPEC agreement on product prices and Middle Eastern product exports are helping to undermine the product prices and hence the OPEC crude pricing structure. Also the need for gas feedstocks has encouraged a number of OPEC members to pump more oil than they might have done thereby further weakening OPEC control. There are no prospects for this situation to change until the OPEC members own a substantially larger percentage of world refinery capacity. For strategic reasons this seems unlikely to occur.

If this analysis is accepted (and it is somewhat controversial),[24] what conclusions can be drawn? Earlier in the paper, four motives for diversification were identified, the desire to broaden the economic base, for economic development, for profit and for oil industry control. Bearing in mind the dictum that 'all generalizations are wrong' none have been achieved as a result of the downstream move and nor do any look like being achieved. The result is that in many cases the downstream strategy is being rethought because the prospects seem so poor. In the meantime a vast quantity of resources have probably been wasted simply because not enough thought was given when the plans were first being considered. It is likely that the experience will go down as a classic example of the dangers of governments being rushed into decisions which they are ill-equipped to make.

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INDUSTRIALISATION IN THE GULF: ITS IMPLICATIONS FOR EASTERN AND ASEAN COUNTRIES

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countries which has generated a continuous impetus for industrialisation in recent times. A combination of these two economic elements was sufficiently powerful and effective to overcome the various difficulties in establishing hydrocarbon-based industries. These constraints included the smallness of the domestic markets, the scarcity of labour and the lack of supporting and secondary industries. Though the Gulf states have neither the market for products nor supporting industries they have established several capital-intensive hydrocarbon-based industries. Such industries can be created in developing countries only after substantial capital accumulation and technological progress is realised. They capitalise on cheap natural gas and abundant financial resources. Development aided by such resources contrasts with that in Asian countries such as Taiwan, Korea, Hong Kong and Singapore which had been typified by over-population and cheap labour and had offered an economic model of "economic development with unlimited supplies of labour". This model for newly industrialising countries (NICs) is very different from that found in Saudi Arabia and the Gulf sheikhdoms.

Petrochemical plants which use cheap oil-associated gas pose a threat to established and potential petrochemical producers all over the world as shown in the fall in bulk chemical prices even before the start of full production. The threat lies not only in the cheapness of their feedstock but also in the special characteristics of their industrialisation typified by the lack of a domestic market, cheap capital costs and state ownership of plants. In brief they are liable to be suspected of flooding the world petrochemicals market with cheap products due to the unique character of their industry.

Established petrochemical producers based on naphtha in North-East Asian and ASEAN (Association of South East Asian Nations) countries have been seriously affected by higher oil prices. The

increased feedstock costs blunted their competitive edge in export markets resulting in a lower operation rate of plants and concurrent red ink on the ledger sheets. Prospective producers in ASEAN countries have been forced to postpone or shelve plans for the establishment of plants partly due to financial difficulties and partly due to the expected penetration of the regional market by Gulf producers, though they have their own natural gas and a substantial domestic market. The reaction of Asian chemical producers to the advent of the Gulf chemical industry is mixed as their country's relationship with the Gulf oil producers is tightly knit through trade in goods and services.

SOME SPECIAL CHARACTERISTICS OF INDUSTRIALISATION IN THE GULF COUNTRIES

The economies of the oil states which heavily depend on oil exports are typical single product economies with price and marketing vulnerability. The oil dependence of the economies of the Gulf oil producers is in terms of the percentage rate of the oil sector's value added to GDP, oil incomes (income tax, royalties and bonus payments) to total Government revenues and oil incomes to total foreign exchange earnings. For the Gulf states the dependence is without exception higher than that of any other mineral or agricultural exporting country, (copper, phosphate, cocoa, coffee, sugar, jute and so on). The uniqueness of the Gulf oil producers' economy in both strength and weakness is attributable to the fact that by any of the above-mentioned economic indices their dependence on oil is extraordinarily high. Their oil had been explored, developed and produced by multi-national oil companies before the nationalisation of the oil industry, mostly in the early 1970s.

The oil industry in the area was a typical enclave industry in the sense that it had virtually no linkages with other sectors of the indigenous economy. The Gulf states had shown little interest in investing in oil support industry and downstream activities with the single exception of oil refining. Apart from this the states imported almost all necessary inputs from abroad. Their investment concentrated on the development, production and export of oil, and the development of base towns supporting their activities such as Abadan in Iran and Dhahran in Saudi Arabia. These base towns were well equipped with economic and social infrastructures, i.e. ports, airports, asphalted roads, hospitals, schools and telecommunications facilities but they had not influenced or been designed as models for the development of other cities in the host country, and they remained enclave economies.

The oil industry in the Gulf was socially and economically isolated. The oil industry in the Gulf was linked to local economies mainly through the payment of taxes by the multinational oil companies. Therefore, in spite of the relative significance of the oil industry and oil revenues in a number of Middle Eastern countries, H. Mahdavy concluded that "the oil industry in the Middle Eastern countries cannot be considered as a 'leading sector' - whatever that implies - in the usual way that certain industries have been so labelled in the western economies".[1] However, he did not deny the possibility in Iran in the future, but rather claimed that: "reversal of the oil company policy of input minimized from local economies and development of ancillary industries based on gas, power and petrochemicals . . . . Refining and marketing of the petroleum by the producer countries will have the same effect".[2]

The idea of developing the hydrocarbon-based industry has been put into practice since the early 1960s in some countries, but their investment in refining and petrochemicals in the 1960s was small in scale and sporadic. It was only after the first oil crisis in 1973-1974 that Gulf oil producers earnestly launched the development of oil supporting and hydrocarbon-based industries in which the oil industry was assigned the role of locomotive for industrialisation for the first time in the countries' history. The quadrupling of oil prices in 1973-1974 on the one hand, drastically changed the fate of energy intensive industries in non-oil producing countries reducing their competitive power or disabling them, while on the other hand, it opened up a way for the building of heavily energy intensive industries such as petrochemicals, steel, aluminium refining and oil refining in energy resources-rich countries. Greatly increased oil revenues in a changing energy situation prompted the Gulf oil producers to establish large scale export refineries and petrochemical plants. As Table 1 shows, there is already substantial petrochemical capacity.

TABLE 1 PRIMARY AND BASIC DERIVATIVE PETROCHEMICALS CAPACITIES IN THE ARAB GULF COUNTRIES ('000 Tons/Year)

	Ammonia		Urea		Ethylene		L D P E		H D P E		Ethylene Glycol	Etha-nol	EDC/VCM /PVC (3)	Metha-nol	Styere
Country	1982	1985	1982	1985	1982	1985	1982	1985	1982	1985	1985	1985	1985	1985	1985
U.A.E.	-	330	-	500	-	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	180	510	300	800	-	1606	-	665	-	195	500	281	456	1250	295
Iraq(1)	985	985	1450	1450	130	130	60	60	30	30	-	-	66/60		
Oman	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Qatar	594	594	660	660	280	280	140	140	-	-	-	-	-	-	-
Kuwait(1)	660	990	792	792	-	-	-	-	-	-	-	-	-	-	-
Bahrain(1)	-	330	-	-	-	-	-	-	-	-	-	-	-	330	-
Total	2419	3739	3202	4202	410	2016	200	865	30	225	500	281	456/66/60	1580	295

Notes: (1) In the field of fertilizers, in addition to ammonia and urea, both Iraq and Kuwait have small units for ammonium sulphate (140 and 165 thousand tons per annum capacity respectively).

(2) The projects in Bahrain are joint ventures between Kuwait, Bahrain and Saudi Arabia.

(3) The Saudi project is designed to produce EDC only whereas the Iraqi project is designed for 66,000 ton / year VCM which is to be processed further in a 60,000 tons/year PVC unit.

Source: Mohammed Y. Shana'a, Ahmed N. Al-Saadi, The Need for Diversification of the Petrochemical Industry Base in the Arab Gulf States, Al Ta'awon Al Sina'e, No.12, 11.

The Gulf states have neither local labour forces nor the sufficient domestic market which is required for industrialisation on such a large scale. Their development efforts are unique in the history of industrialisation. The states believe that the justification for their industrialisation is to ensure the best use of their one resource, i.e. oil and/or natural gas which would otherwise be flared or exceptionally exported as LPG and LNG. Middle Easterners strongly argued for developing gas-intensive industries to fully utilise their abundant natural gas (oil associated gas). However narrow and weak their industrial base may be and whatever the economic returns of industrial projects based on it may be, only gas-based industries might be internationally competitive in their economies. The price of natural gas is decisive for the success of gas-based industries in the Gulf. With regard to Saudi Arabia, Robert E. Looney asserted that the "creation of gas-based industries in the Kingdom makes sense if the relative cheapness of the country's gas can be used to overcome some comparative disadvantages which the country faces".[3] The Saudi Government decided to charge chemical producers just 50 cents per million BTU for their feedstock gas, compared with a European price of $4 to $5.25 per million BTU and the US average of $3.05 to $3.50.[4] (At the time of writing, the spot price for natural gas in the USA is around $2.50 per million BTU). Saudi's gas price is probably the cheapest among the major petrochemical producers putting aside the problem of whether it is cheap enough to overcome some comparative disadvantages which it faces.

The supply of gas and its pricing is a bone of contention in various respects. All gas-based industrial projects are premised on an assumption of abundant gas, but in reality gas supplies are far from abundant due to an unforeseen fall in oil production with which gas production has been associated in the Gulf countries since 1982.

In Qatar, a shortage of gas supply has caused a far lower operation rate than the installed capacity of the Qatar Petrochemicals Company which commissioned the first ethylene cracker in the Gulf in 1982.[5] Saudi Arabia is also likely to suffer from a shortage of gas when all major industrial plants come on line for production unless its oil production is recovered at least to the level of OPEC's production ceiling, i.e. 5 million barrels a day. If world demand for OPEC oil remains stagnant in the coming years, the Gulf oil producers will have to modify the assumption of a cheap gas supply for their petrochemical plants. Theoretically, industrial gas separated from crude oil requires a price to recover operational costs including gas gathering, liquefaction and transportation investments. If a shortage of oil-associated gas will be made up by the development of structural gas, it will become more costly. Cheap gas pricing for oil producers is indispensible for the petrochemicals producers to maintain their competitiveness in export markets even if it is at subsidised rates. In fact, petrochemical producers in the USA and the EEC have imposed protectionist tariffs on Saudi products made from subsidised cheap gas. The European Commission decided to set a tariff of 13.48% on Saudi's linear low density polyethylene in addition to methanol which exceeded its quota under the Generalised System of Preferences. Saudi Arabia is moving towards retaliation for the Commission's decision by imposing customs duties of 20% on imports from the European Economic Community. Petrochemicals producers in Japan and the USA are closely watching the petrochemical war between the EEC and Saudi Arabia which might affect them before long.

Concessional loans at low interest rates are a hidden subsidy to petrochemical producers in Saudi Arabia. All petrochemical companies, including joint venture companies between the Saudi Arabian Basic Industries Corporation and foreign companies are placed under

the category of public sector company and they are entitled to a loan by the state-owned Public Investment Fund, which is specialised in the finance of public sector industries. It finances to the extent of 60% of total petrochemical project costs at a concessional interest rate. The concessional interest rate is as indispensible as cheap gas prices to the economic viability of capital intensive petrochemical industry. The economic rationale of foreign partners' investment in petrochemical projects in Saudi Arabia is solely based on these two elements. Details of the foreign participation are given in Table 2.

Sabic holds 50% of the equity of all petrochemical companies except the Arabian Petrochemical Company. Originally it was a joint venture company with the Dow Chemical Company of the United States, which withdrew from the project in 1982 due to the prospect of over-capacity in the world petrochemical industry. At this stage Sabic pressed on alone with the project. Apart from this instance the Saudi Government has succeeded in realising its initial policy to bring foreign partners into large scale export-oriented ventures on a basis of fifty-fifty. The reason why the Saudi Government insisted on the joint venture formula was that it needed foreign partners' co-operation in the operation and maintenance of sophisticated plants and the marketing of their products in foreign markets. Saudi Arabia has neither skilled and sophisticated manpower nor a sufficient market for its production. The joint venture formula was viewed as a solution to this. If the established oil industry or gas-based industry in the Gulf is a reliable guide, petrochemical plants in Saudi Arabia will also be operated largely by foreign manpower. This was the case with the Qatar Steel Company which has been managed by the Kobe Steele company of Japan under a management contract. This has proved successful as its operation rate has been over 100% since 1980. Unless the Saudi Government hurriedly nationalise the jobs in their plants, the same

TABLE 2 SAUDI PETROCHEMICAL PLANTS

Name	Partner	Feedstocks	Products	Capacity 1,000 tons/year
Saudi Petrochemical Co. (Sadaf)	Pecten Arabia Ltd., subsidiary of Shell Oil Co.	Ethane	Ethylene	656
		Salt	Ethylene dichloride	454
		Benzene	Styrene monomer	295
			Crude industrial ethanol	281
			Caustic soda	377
Saudi Yanbu Petrochemical Co (Yanpet)	Mobil Oil Corp.	Ethane from East-West pipeline	Ethylene	455
			Linear low density polyethylene	205
			High density polyethylene	91
			Ethylene glycol	220
Al-Jubail Petrochemical Co. (Kemya)	Exxon Chemical Co.	Ethylene from Sadaf	Linear low density polyethylene	270
Saudi Methanol Co. (Ar Razi)	Japanese consortium headed by Mitsubishi Gas Chemical Co.	Methane	Chemical grade methanol	600
National Methanol Co. (Ibn-Sina)	Celanese (25%) Texas Eastern (25%) U.S.A.	Methane	Chemical grade methanol	650
Arabian Petrochemical Co. (Petrokemya)	100% Sabic owned	Ethane	Ethylene	500
Eastern Petrochemical Co. (Sharq)	Japanese consortium headed by Mitsubishi	Ethylene from Petrokenya	Linear low density polyethylene	130
			Ethylene glycol	300
Al-Jubail Fertilizer Co. (Samad)	Taiwan Fertilizer Co.	Methane	Urea	500

operation performance as in developed countries will be anticipated. Foreign partners take the responsibility for the marketing of most of the products from the joint venture plants. The remaining products will be exported by Sabic who are busy establishing a sales network, in the major export markets. As Sabic is a new face in the market, its marketing strategy and price setting has been subject to much speculation.

Saudi Arabia's installed capacity in terms of ethylene is 1.6 million tonnes and its share in the world petrochemical plants is estimated at around 3-4%. In terms of installed capacity, Saudi Arabia's share is not so impressive, but the new exports from it are estimated to be well over 30% of current net regional trade, which is large enough to pose a threat to the world chemicals market. As the domestic consumption of petrochemicals is projected at only 20% of its production, therefore, from the very time of starting up the petrochemical industry in Saudi Arabia, it will be the single most export-oriented industry in any developing country. The Saudi problems in facing the world petrochemical industry stem from the large scale as well as the uniqueness of the petrochemical industry in Saudi Arabia. Aluminium refining in Bahrain and Dubai are also major export-oriented industries but they have not threatened the established producers as the petrochemical industry is doing because of their relatively small share in traded primary aluminium. There are many constraints on the development of the petrochemical industry in the Gulf in addition to those already mentioned. Firstly, the natural gas-based petrochemical industry has an inherent limit due to its inability to produce propylene and aromatics. Ethylene derivatives account for around 30% of total petrochemicals, therefore, possible maximum replacement of the natural gas-based industry is limited to that extent by the demand pattern of petrochemicals. At present

primary aromatics, propylene and C_4 hydrocarbons production facilities do not exist in the Gulf states. Secondly, petrochemical industries in the Gulf produce only commodity chemicals such as polyethylene and ethylene glycol, which are used as raw materials in most industrialised countries. The Gulf petrochemical industry is not yet in an integrated form from basic products to intermediates and beyond to finished products. As the stage of production advances, Gulf producers become less competitive in export markets. In a chain of chemical production the labour intensity increases as the stage of processing proceeds to the final consumers. In addition the final products' transportation cost is higher than that of basic products. To move down the production chain from basic to intermediate and findl chemical products in countries with a small domestic market is not economical. Thus Gulf producers will have to remain as commodity chemical exporters for a considerable length of time. Even in Saudi Arabia, the petrochemical industry is an enlarged enclave lacking a forward linkage despite the huge investment in petrochemical projects and supporting infrastructures in Jubail and Yanbu. Its role as a locomotive for Saudi economy is minimal, and is likely to remain so for the forseeable future.

THE RATIONALISATION OF THE PETROCHEMICAL INDUSTRY IN JAPAN

The USA, Japan and the EEC are the three traditional world petrochemical producers, whose installed capacity accounts for 62% of the total world installed capacity, even in 1984, as shown in Table 3. While the growth of world demand for petrochemicals has decelerated since the second oil price crisis, a lot of new petrochemical plants which were built in the various parts of the world, based on the higher demand forecasts made in the 1970s, have generated the world-wide overcapacity. The free world's ethylene production in 1981 was around 31 million tonnes against the installed capacity of 49 million, representing an operation ratio of 63%. World-wide overcapacity, combined with higher feedstock prices, severely hit all petrochemical producers, especially the naphtha-based producers as shown in the Japanese producers' performance (Table 4). They have lost the competitive edge of most commodity chemicals, though not all products, to gas-based producers. Naphtha-based producers in Japan and the EEC have been forced to rationalise their plants due to persistent overcapacity generated by the decelerating growth of demand for petrochemicals. Amongst the major producing countries Japan had most vigorously implemented the capacity reduction which was urgently required to cut overcapacity for the following reasons.

1 To ensure a stable oil supply from Saudi Arabia, Japan has to take a more accommodating economic stance towards Saudi Arabia, which is its single largest oil supplier. Oil from Saudi Arabia accounted for about 28% of Japan's oil imports in 1983.

2. Japanese firms backed by the Government have invested in two joint venture projects to receive crude oil purchase entitlements. The joint venture partners are required to take the majority of their products, so they have to make room by scrapping their own petrochemical plants to absorb them.

TABLE 3 WORLD INSTALLED ETHYLENE CAPACITY (1,000 metric tons/year)

Area	1982	1983	1984
North America			
U.S.	17,836	17,543	17,073
Canada	1,791	1,561	1,561
Total	19,627	19,104	18,634
Latin America			
Argentina	253	253	253
Bolivia	230	230	230
Brazil	1,242	1,347	1,407
Chile	60	60	60
Colombia	115	115	115
Mexico	935	935	932
Puerto Rico	413	413	413
Venezuela	150	150	150
Total	3,398	3,500	3,560
Western Europe			
Austria	265	265	265
Belgium	520	520	520
Finland	165	165	200
France	2,845	2,590	2,270
West Germany	4,095	4,170	3,990
Greece	15	15	15
Italy	2,070	1,980	1,465
Netherlands	2,260	2,260	2,260
Norway	300	300	350
Portugal	300	300	300
Spain	1,031	956	956
Sweden	340	355	350
Switzerland	30	30	30
U.K.	2,270	2,265	2,270
Total	16,506	16,171	15,261
Asia/Pacific			
Australia	321	335	340
China (Taiwan)	690	690	955
India	239	251	252
Japan	5,777	6,354	5,996
Korea	505	505	505
Singapore	-	-	300
Total	7,532	8,135	8,428
Other			
Algeria	120	120	120
Iran	26	26	26
Israel	24	24	24
Qatar	280	280	280
South Africa	150	150	150
Turkey	55	55	55
Total	655	655	655
World Total	47,718	47,565	46,538

Source: O.G.J. Ethylene Report, Oil & Gas Journal, Sept. 3, 1984.

TABLE 4 PETROCHEMICAL INDUSTRY TRENDS

(1,000 tons)	FY 1980	FY 1981	FY 1982	FY 1983	FY 1983 1st half	FY 1983 2nd half	FY 1984
Domestic sales	3,580	3,640	3,600	3,870	1,890	1,980	4,050
Exports	420	450	430	430	190	220	390
Imports	230	340	410	400	190	210	480
Production	3,870	3,590	3,570	3,970	1,770	2,220	4,050
Capacity	6,070	6,110	6,110	6,030	3,020	3,020	4,640
Operating rate (%)	63.8	59.2	58.4	65.7	58.6	72.9	87.3
Corporate profit or loss (¥ billion)							
(5 diversified companies and 2 petrochemicals makers)	59.3	-24.1	-42.7	34.8	-3.1	37.9	97.5

Source: Junro Mitsuoka, Chemicals Look Up - Briefly, Journal of Japanese Trade and Industry, No.11985, p.25.

3. Even before the first oil price crisis, some Japanese producers had prepared to move their production bases from Japan to energy-rich areas seeking cheaper feedstocks as the naphtha price was higher in Japan than in other countries. This was due to the cross-subsidy of the politically sensitive kerosene which is widely used for space heating in winter at the cost of naphtha and fuel oils (naphtha imports for chemical use were liberalised in 1983). Since only three ethylene plants (including one for replacement commissioned in 1985) were commissioned in Japan after the first oil shock. Most of the ethylene plants have finished their depreciation. Thus the financial loss of chemical companies accrued from plant scrapping on a large scale was minimised.

4. The low unemployment rate in Japan also facilitated the close-down of chemical plants. There was no industrial dispute attributable to it.

5. Deeming the petrochemical sector a fundamentally non-profitable sector which has to be cross-subsidised by profitable sectors, Japanese chemical companies have moved their investment priority from it to fine and speciality chemicals.

6. A huge trade surplus with major trade partners has prevented Japan from adopting any trade barriers to chemical imports. Japan is not in a position to increase tariff rates on chemicals from Saudi Arabia as well as the USA and Canada for the protection of its industry.

The petrochemical industry in Japan used to be called the '10 per cent industry' due to its approximate 10 per cent share in industrial output and industrial product exports. It had been a locomotive of high economic growth until the first oil shock. The second oil price

crisis which erupted five years later, completely undermined its feedstock base and it plunged into the sunset industry category. It had disposed of 36 per cent of its ethylene crackers in accordance with the rationalisation programme, shown in Table 5. The scrapped capacity is far larger than the total installed capacity of the Middle East producers. The large adjustment was carried out smoothly without major business failures or social disturbances as was the case with aluminium refining. However, the economic effect of the plant reduction was so large that it turned Japan from being a major petrochemical exporter to being a net importer.

There are many forecasts for the geographical distribution of Saudi products, and according to a forecast made by Japanese producers, about 50 per cent of Saudi products will flow into the Asian market, including Japan, and the remaining 50 per cent will go to West Europe (24 per cent) and the USA (14 per cent).[6] It can be safely projected that Asia will become the largest importer of Saudi products but the actual inflow of chemicals will be influenced by various factors. These include tariff rates of chemicals by other major importers, foreign exchange rates of major currencies and supply and demand fluctuations in other major markets. Before the arrival of the first shipment of Saudi products to Japan most of the Japanese producers considered that even after a huge capacity cut the Japanese producers' position would be precarious and a further run-down of plants would be unavoidable if the flow into the Asian market is more than originally assumed. They are now more optimistic about their industry's future, finding that Saudi Arabian products are not so popular among consumers due to non-price factors. In addition, there has been some recovery of markets. Take LLDPE (Linear Low Density Polyethylene) and HDPE (High Density Polyethylene) for example. Saudi Arabia supplies only about 30 different varieties (grades) of LLDPE and 10 grades of HDPE,

TABLE 5 EXISTING PRODUCTION CAPACITY OF ETHYLENE AND ITS MAIN DERIVATIVES AND THE CAPACITY WHICH MUST BE DISPOSED OF

Description	Estimated output for 1985 (a)	Optimum production capacity (b=a+0.9)	Capacity at end of Aug. 1982 (c)	Capacity that must be scrapped (d)	(d)/(c)
	(1000 ton)	(1000 ton)	(1000 ton)	(1000 ton)	%
Ethylene	3,649	4,054	6,347 (6,527)(1)	2,293 (2,473)(4)	36 (38)
LD polyethylene	958	1,064	1,667	603	36
HD polyethylene	665	739	1,007	268	27
Polypropylene	1,085	1,205	1,252 (1,332)(2)	—	—(3)
Polystyrene	669	743	869	—	—(3)
Styrene monomer	1,198	1,331	1,761 (1,818)(4)	430 (487)(5)	24 (27)
Acrylonitrile	496	551	810	259	32
Ethylene oxide and glycol (in terms of ethylene oxide)	488	542	743	201	27
PVC resin	1,365	1,517	2,007 (as of Feb. '82)	490 (out of the capacities as of Feb. '82)	24

Notes: (1) The figures in (a) in the column of ethylene represent the amount obtained by adding the balance reached by subtracting 120,000 ton to be scrapped from 300,000 ton the new capacity to be started up by April 1985.

(2) The figures in (a) in the column of polypropylene represent the amount obtained by adding 80,000 ton to the capacity to be started up by early 1983.

(3) As for polypropylene and polystyrene, the excess capacity is not so large and therefore for the time being, there will be no curtailment of capacities.

(4) The figures in (a) in the column of styrene monomer represent the amount obtained by adding the balance reached by subtracting 103 thousand ton the capacity of the plant to be scrapped from 160,000 ton, the capacity to be started up by end of April 1983.

(5) Capacities exceeding the optimum capacities are subject to adjustment. When the existing capacity changes, the capacity to be disposed of should also change.

Source: Japan Chemical Industry Association, Position Paper for the Conference between the Japan Chemical Industry Association and the Chemical Industries Association of the United Kingdom, p.6.

while several hundreds of grades of products are available in the Japanese market.[7] Saudi Arabia's range of products is far narrower than that of Japanese producers who are accustomed to services dedicated to their customers' needs.

Charles Smith argues that "Japanese consumers, whether at the retail or industrial level, are notoriously fussy about the quality of polyolefin products, which is said to be one reason why US and Canadian exports have not made much impact on this section of the Japanese market".[8] The word 'quality' might be misunderstood by non-Japanese readers because what matters is not quality in the Western meaning, as exemplified in the case of LLDPE. Country specific in Japan could be a trade barrier even in basic chemicals. In some ASEAN states, LLDPE has been forming an independent market different from the traditional LDPE. "Most plastic-related plants are designed to use LDPE: machinery conversion to take linear LDPE or LLDPE - the main Saudi line - would be costly."[9] Even if Saudi LLDPE is cheaper than traditional supplies the users of LDPE in developing countries cannot quickly convert their machinery to adopt cheaper new raw mateials. Market reaction to Saudi products reasonably led to the conclusion that "the Saudi product line is not completely compatible within the plant system in South East Asia, its impact on countries such as Thailand is expected to be marginal".[10]

Increasing demands for chemicals are supported by the current world-wide economic recovery. In addition a series of accidents at Esso's ethylene cracker in Sweden, Enchem's cracker in Sicily and Rheinighe Olefinwerke cracker in West Germany, have taken out about 10 per cent of Europe's total ethylene capacity. This has benefitted petrochemical producers generally and Asian producers in particular. High chemical prices in Europe are attracting more Saudi Arabian chemicals than originally projected by various forecasts, and the

South East Asian market, which had most sensitively reacted to fears of a Saudi product wave, turned upward from June 1985.

Japanese producers have breathed a sigh of relief with a recovery of prices in the South East Asian market because the first capacity run-down was based on the assumption that the Japanese producers would be able to retain their market share in South East Asia, which accounted for about ten per cent of total production. In November 1984, Mr. Akita Takishima, then Director of the Chemicals Division of the Japanese Ministry of Trade and Industry told the Financial Times that "if they (Japanese chemical companies) lose their foreign market, even though it is just ten per cent, the effect will be so great that prices in the home market will be greatly reduced".[11] The domestic market has been eroded mostly by incremental American and Canadian products from cheaper feedstocks. Whether Japanese producers will be able to retain present production capacity mainly depends on the increase of demand for chemicals and the stability of chemical prices in Japan and South East Asia. If the current recovery of demand for chemicals continues, new Saudi Arabian products could be easily absorbed in a few years. The possibility that Saudi Arabian products concentrate on Asian markets has been avoided for a while, mainly because of accidents in European plants which took out about 1 million tonnes of capacity. However, the situation is full of unknowns. In the EEC, with a high unemployment rate, the closedown of petrochemical plants is not an easy task, though the overcapacity rate is higher than that of any other major producers. In a policy statement, the Chemical Economic Development Committee of the UK recommends that "the provisions of GSP (Generalised Scheme of Preferences) should be used to prevent duty-free imports of products disrupting the European markets".[12] In fact, the EEC decided to set a tariff of 13.4 per cent on petrochemical exports which might transfer Saudi products to other areas.

United States producers using domestic natural gas and cheaper naphtha compared with Japanese and EEC producers are most competitive amongst the existing producers. However, even in the case of United States producers, the impact of Saudi Arabian products is felt in third markets. Fortunately for the United States, their domestic market is less exposed to Saudi invasion because of relative high freight rates for shipping chemicals from the Middle East to Texas and other states. Nevertheless, United States Congressmen from petroleum-producing states argue for tariffs on Saudi products. Saudi producers will not have an easy access to the United States market, whether tariffs are imposed or not, for the reason already mentioned.

It is still doubtful whether Saudi products will be marketed evenly in the various parts of the world in the coming years. Asian producers have not dispelled fears of a Saudi product invasion of their markets.

PRODUCERS AND MARKETS IN SOUTH KOREA AND TAIWAN

South Korea and Taiwan have strongly promoted heavy industrialisation policies following the example of Japan, even after the first oil crisis. South Korea has built two big naphtha-based petrochemical complexes during the 1970s and its current installed capacity is 505,000 tonnes a year. The petrochemical industry has been a growth industry, but producers recorded huge deficits in the first three years of the 1980s as the price of its basic raw material soared while products prices did not rise correspondingly. In South Korea the chemical industry is one of the priority industries and the price of naphtha is cross-subsidised according to the Government industrial policy designed to hold the prices of basic chemicals to international market levels. In an export-oriented economy like South Korea, basic chemical prices are mandated to be cheap enough to make final products competitive in export markets.

In South Korea, like Taiwan, first came the downstream end of the petrochemical industry using imported raw materials, in sharp contrast to the Gulf producers who began from upstream. After a domestic market for chemicals had been established, ethylene crackers which use naphtha as a feedstock were built. Both countries have established an integrated petrochemical industry which has a wider and stronger industrial base, except for feedstock, than Middle East producers.

South Korean chemical markets have been insulated from foreign competition by a protectionist policy. At the same time, Korean producers used to export a substantial part of their intermediates as well as finished products in order to maintain a high operation rate in each plant. As no new chemical plants were built in the first half of the 1980s, Korea's self-sufficiency in petrochemicals fell to 73 per cent in 1984. In view of a widening gap between supply and demand, two companies have launched plans to double the country's

ethylene capacity. However, the companies did not dare to implement their plans fearing the impact of Saudi Arabian exports, especially as there are pressures for import liberalisation in petrochemicals as well as other products.

Taiwan is an export-oriented newly industrialised country like South Korea. Although its economic scale in terms of population and GDP is smaller than South Korea, Taiwan, with 955,000 tonnes potential in petrochemicals, exceeds South Korea in installed capacity. For Taiwan this is a drawback rather than an asset in the current market situation. The Government-owned Chinese Petroleum Corporation (CPC) takes charge of crude oil imports and major downstream activities including refining and basic petrochemicals. With the commissioning of the fourth naphtha-based cracker in April 1984, CPC concentrated production on efficient plants for rationalisation. CPC has been facing a very difficult situation of not being able to quickly expand markets for the increased capacity. In 1984, Taiwan produced 660,000 tonnes of ethylene against its installed capacity of 995,000 tonnes. In order to retain international competitiveness for the finished chemical products in the context of the highly export-dependent Taiwanese economy, CPC have not been allowed to transfer the increased feedstock costs to end users. "CPC's pricing policy is to stick closely to United States contract (long-term) prices for its petrochemicals raw materials, ethylene, propylene, butadiene, benzene and toluene. At the beginning of 1984, CPC ethylene sold at US$463 a tonne; by the end of the year, the price stood at US$402."[13] CPC accumulated huge losses in the recession period. Two methanol plants operated by private companies, which used to export part of their product, shut down in early 1984 due to uncompetitiveness with imports into the domestic market.

The Government policy makers, in the early 1980s, dropped the

petrochemical industry from the category of strategic industry which the Government fosters intensively and thus indirectly admitted their wrong decision on the expansion of chemical plants. They have directed their economy towards soft and service-orientated activities with special emphasis on the computer and microelectronics industries.

Higher growth and excellent economic performance even among the Asian NICs is a relief for the petrochemical industry, on the other hand the persistent huge trade surplus has been resulting in pressure for more liberalisation of chemical imports. In order to maintain the special relationship with Saudi Arabia, Taiwan is not in a position to shut out Saudi products. It will take a long time for the CPC to get out of the wood.

Producers in both Korea and Taiwan have not invested in joint-venture projects in gas-rich countries like some Japanese producers. This could be explained by the fact that they are late comers and their financial and technological bases are weaker than the Japanese. The only one exception is the Taiwan Fertiliser Corporation which has a joint-venture company with the Saudi Arabia Basic Industries Corporation, and imports chemical fertiliser from it.

EXISTING AND POTENTIAL CHEMICAL PRODUCERS IN ASEAN COUNTRIES

ASEAN Countries as a whole have achieved a high economic growth in the 1970s through import substitute industrialisation mainly in light industries and selected heavy industries typified by textiles, electrical and electronics industries in the former category and automobile assembly and shipbuilding in the latter category. Table 6 provides some indication of their level of development. They have raised the level of their industrial development from where they could look for the introduction of petrochemicals upstream mainly based on domestic downstream demands. The consensus view shown in their economic development plans was that the upgrading of their economies to the level of South Korea and Taiwan necessitates petrochemicals and an integrated steel industry as a mainspring of economic growth.

From the point of view of the petrochemical industry introduction they are in a relatively advantageous position in terms of feedstocks and markets. Three of the five ASEAN countries (excluding Brunei which joined ASEAN in 1984) are substantial gas producers. Singapore has no hydrocarbon resources but it is the world's third largest refining centre after Rotterdam and Houston, with a refining capacity of 1.1 million barrels a day. ASEAN's largest oil and gas producer, Indonesia, built up more than 2 million tonnes of chemical fertiliser plants based on indigenous natural gas.

Ironically, it is not the gas producers, but Singapore that first built an ethylene cracker in ASEAN. The Singapore Petrochemical Company's plant, with a capacity of 300,000 tonnes a year, was commissioned in February 1984. It is a joint venture project between the Petrochemical Corporation of Singapore (PCS) and a consortium of 32 Japanese firms led by the Sumitomo group and the Japanese Government. Singapore has neither a large internal market for chemicals nor its own natural gas resources so that SPC started as a loss-making producer in a severe market situation. Although its

TABLE 6 BASIC INDICATORS OF NORTH AND SOUTH EAST ASIAN STATES

Countries	Population (million) mid-1982	Area (thousands of square kilometers)	GNP per capita Dollars 1982	Average annual growth rate (per cent) 1960-82	Life expectancy at birth (years) 1982
Japan	118.4	372	10,080	6.1	77
South Korea	39.3	98	1,910	6.6	67
Taiwan	18.5	36	2,334	8.9	72
Singapore	2.5	1	5,910	7.4	72
Malaysia	14.5	330	1,860	4.3	67
Thailand	48.5	514	790	4.5	63
Indonesia	152.6	1,919	580	4.2	53
Philippines	50.7	300	820	2.8	64

Source: World Bank, World Development Report 1983 and Taiwan Statistical Data Book, 1984.

start-up was delayed for about a year following the partners' advice to consider the market's glut and depressed prices world-wide, it recorded a S$30 million (US$14.5 million) loss during its first year of operation which ended in February 1985. Operation rates of the plant averaged 65-80 per cent in 1984. With the commissioning of downstream plants, utilisation was up to 95-100 per cent in the first half of 1985.

It is too early to assess the economic viability of the PCS. However, some Japanese industrialists view the plant as the only big economic mistake made by Prime Minister Lee Kuan Yew. The Government of Japan reluctantly decided to co-operate in the project considering the Singaporean Government's strong influence on overseas Chinese, because it is a country of de facto overseas Chinese who have wide economic interests in Asian countries. In Tokyo, politics came before economics. To my mind, the reason why Prime Minister Lee stuck to the completion of this project in precedent of any other ASEAN countries was that it is the only large-scale export-oriented industry Singapore could have now and in the near future. The Japanese Government are committed to both the Saudi Arabian and the Singapore petrochemical projects, being strongly pressurised by these two important countries.

PCS's problem is, like Saudi Arabia's, to find a market. It plans to export 70 per cent of its products to other Asian countries competing with established and new producers. Its future mainly depends on feedstock prices and the expansion of regional markets.

It is also interesting to consider the possible effects caused by Saudi Arabian export refineries to refiners in Singapore. The Singaporean refining industry has been characterised by heavy dependence on third party crude oil-processing from neighbouring countries, mainly from Indonesia. At one stage, 250,000 barrels a day of Indonesian crude was being processed in Singapore. During 1983, Indonesia commissioned three new refineries with hydrocrackers and it reduced

drastically the dependence on crude processing deals and product imports involving Singapore. Refiners in Singapore have been actively seeking new processing contracts with non-traditional customers like China, India and Sri Lanka. The upgrading of residual fuel oil is another important measure to increase sales in response to the regional petroleum demand pattern because in the region demands for petroleum products are lopsided, with heavy demands for high-speed diesel oil and kerosine. Despite their efforts to cope with the changing situation, capacity utilisation amongst refiners, usually a secret, is estimated at 60-70 per cent in 1984 and 50-60 per cent in the first half of 1985, far lower than the level which ensures profitability. Shell Eastern Petroleum, the largest refiner with a capacity of 450,000 b/d, closed down one of the four plants completely, in addition to one plant being temporarily shut down. Singapore refiners have shown remarkable resilience and adaptability to the changing market situation but they are likely to be forced to cut more capacities, like refiners in the rest of the world, with the inflow of Saudi Arabian products. The corporate strategy of Shell and Mobil, who are partners in the big export refineries with a capacity of 250,000 b/d each in Saudi Arabia, will have a crucial influence on the utilisation of capacity in Singapore.

Among other ASEAN countries, Thailand is likely to be the major ethylene producer after Singapore. The Thai Government have launched a master plan to construct a big industrial complex on the eastern seaboard utilising natural gas from the Bay of Thailand which came on stream in 1982. The petrochemical complex is the mainstay in the industrial development plan. Financial difficulties and increasing foreign debt in the wake of the second oil crisis have delayed the project, virtually shelving it. In early 1985, the National Petrochemical Corporation invited international companies to put forward tenders for

its olefin plant, and start-up is expected in 1989 as scheduled. The planned complex consists of an ethylene cracker with a capacity of 315,000 tonnes a year and a propylene plant with a capacity of 105,000 tonnes. Its realisation solely depends on the financing of the project.

As for downstream projects on the east coast, polypropylene, HDPE, LDPE and LLDPE plus vinyls are proposed and they are the responsibility of the private sector. Of the four proposed downstream projects, only the propylene plant with a capacity of 100,000 tonnes/year is pledged to be built by a Thai-foreign joint-venture company. At present only one LDPE plant with a capacity of 65,000 tonnes/year is operative using imported ethylene. The gas separation plant which supplies feedstock to the chemical complex was commissioned in November 1984. At present the plant receives a 330 million ft^3 of gas daily for liquefaction. Although Union, the gas supplier, has developed supply capacity of up to 450 million tonnes a day, demand for gas does not follow the supply increase. It has claimed that the Petroleum Authority of Thailand is to take more gas to recoup its development cost. The supply of feedstock to the planned plant will be made readily available.

Indonesia is a country with a population of 160 million and is ASEAN's largest oil and gas producer. Its gas use for industry dates back to 1964 when the Sriwijaya Fertiliser Plant was commissioned. The current major industrial users are chemical fertiliser, steel and cement. It is the largest LNG exporter in the world and exported 14,058 thousand tonnes of LNG and 443 thousand tonnes of LPG to Japan in 1984. Its petrochemical plant, which was once at the most advanced stage amongst the three gas producers, was shelved in 1983 due to the oil glut and resultant state of the revenue deficit.

The plan called for the establishment of two petrochemical centres:

the Aromatic Centre Project in Plaju, South Sumatra and the Olefin Centre Project in Lho' Sevmawe, Aceh. The former is intended to meet the demand for raw materials from domestic downstream industry, especially the textile industry. This Aromatic Centre consists of six major plants with the following capacity:[14]

- Pure terephthalic acid (PTA) 225,000 tonnes/year
- Benzene 248,260 tonnes/year
- Para-xylene 24,500 tonnes/year
- Ortho-xylene 40,000 tonnes/year
- Cyclohexane 180,000 tonnes/year
- Toluene 11,000 tonnes/year

The latter is designed to meet the demand for raw materials from the domestic plastic industry. This Olefin centre is based on natural gas as feedstock and is designed to produce the following products:[15]

- Low Density Polyethylene (LDPE) 135,000 tonnes/year
- High Density Polyethylene (HDPE) 100,000 tonnes/year
- Vinyl Chloride Monomer (VCM 240,000 tonnes/year

The olefin project is a joint-venture of Pertimina and Exxon of the United States and Japan's Tonen Sekiyu Kagaku which have been involved in Indonesia's oil production and, in part, oil-trade business. The fall in oil prices in 1982 and in early 1983 resulted in a decline in state revenues. All major capital projects including this US$1.6 billion scheme were shelved indefinitely by President Suharto, and Tonen Sekiyu Kagaku withdrew from the joint-venture in October 1983. The Aromatic Centre was frozen after nearly US$550 million was spent on engineering, site clearing and building preparations. Only the construction of pure terephthalic acid (PTA) unit was resumed in April 1984 on a reduced scale. Its scale was contracted from the original 225,000 tonnes/year to 150,000 tonnes/year. While the other

upstream units remain on ice, Plaju is not a complex. The PTA unit will import para-xylene feedstock originally, to be supplied from upstream in Plaju.

Although the capital-intensive upstream units were postponed indefinitely, downstream and finished product industries have been rapidly developing. A 160 million population with a per capita GNP of US$580 offers a market for many daily necessities made from petrochemicals. There are nearly 1,000 plastics manufacturers and more firms are entering the field in Indonesia and current import figures show that about 200,000 tonnes each of ethylene and propylene are consumed in a year.[16] At present the only downstream facilities operative are the polyvinylchloride and polystyrene plants. Increasing domestic demand for petrochemicals gives potential producers a strong motivation for the import substitution of ethylene derivatives. Two companies applied for the establishment of some ethylene downstream plants including polyethylenes, VCM and EDC. One intends to produce polyethylenes with imported feedstock in the planned olefin site, while the other is a joint-venture between Asahi Glass of Japan and an Indonesian firm which plans to produce 150,000 tonnes of VCM and 70,000 tonnes of EDC with imported feedstock from West Java. The feedstock will be changed from imported to domestic ethylene when the ethylene cracker in Aceh comes on stream. They chose West Java which has big cities such as Jakarta and Surabaja where the end-users are concentrated.

The natural gas price for the suspended olefin centre is yet to be disclosed. Gas prices for industrial use set by the Ministry of Mines and Energy will be a good guide. The Petroleum News reports the gas prices at the end of June 1984: "A price of $3/mmbtu was set for private industrial users, including cement and fertiliser plants. Four state-owned urea plants will pay $1/mmbtu, while the ASEAN

fertiliser plant in Aceh, co-owned by the nations of ASEAN, pays $0.60/mmbtu. State-owned Krakatau Steel will pay $0.65/mmbtu for feedstock and $2/mmbtu for fuel."[17]

As far as the price of natural gas is concerned, Indonesia is in a position to adopt a gas pricing policy which enables its industry to compete with Saudi Arabia. In addition to that it has a relatively large domestic market for chemicals compared to Saudi Arabia with a population of around 8 million. A combination of these two advantageous elements brings the hope that the resumption of the ambitious integrated schemes is only a matter of time. Traditionally, Indonesia's industrial policy is inward looking and it will move to upstream schemes as soon as financial conditions permit.

Malaysia is also a prospective petrochemical producer and it is still keen to establish a petrochemical complex. Like the Arab Gulf states the ASEAN members tend to build similar industries at a time when the level of their economic development is at a comparable level. Malaysia's economic size is the smallest among the three gas producers and it is a latecomer in gas development, though its per capital GNP is the highest. Over the past few years, the financial squeeze has increased in severity and the Government shelved capital projects including a 120,000 b/d refinery at Malacca.

Malaysia is looking for a chance to introduce an integrated petrochemical complex to better utilise its abundant gas. A separation plant in Kerteh was commissioned in 1985. Currently gas from the off-shore Tpengganu field is used only for power generation and steel-making on the east coast. The three-phase Peninsula Gas Utilisation Project which has just completed its first stage, calls for the extension of the pipelines from Kerteh to Port Kulang and Port Dickson on the West Coast across the peninsula. The gas-processing capacity will then be upgraded from 250 million ft^3/d to 750 million ft^3/d.

To date, the time schedule of the introduction of a 150,000 tonne/year ethylene cracker is not definite.

Saba Gas Industries (SGI) methanol plant started commercial production in 1985, far behind schedule. A few months after commissioning it has shut down due to technical problems and the scheduled date for full capacity, originally targeted to be April, was again postponed to December. The plant's full capacity is 660,000 tonnes/year.

The Philippines is not a gas producer, but its eleven big industrial projects programme called for a petrochemical project. Before it took a definite form its economy has been ridden by financial troubles stemming from the second oil crisis. Opposition leader Aquino's assassination in 1983 and subsequent political turmoil have generated persistent economic difficulties in the Philippines. The economic and political future for the country is not predictable.

Traditionally, ASEAN is an importer of petrochemicals and it consumed more than 300,000 tonnes of polyethylene in 1983. The petrochemical market in ASEAN is still relatively small, but it has been expanded up to 10 per cent annually. ASEAN will remain a net importer of chemicals, as we discussed already, through the 1980s, though its first petrochemical complex with a capacity of 300,000 tonnes/year started production in 1984.

The situation is not necessarily adverse to it in view of the current petrochemical glut. The South East Asian market is well known for dumping, as it is viewed as a marginal market by foreign exporters. The price fluctuation of petrochemicals is extreme, typically shown in the last quarter of 1984 and the first quarter of 1985 when the market had been ridden with fears of cheap Saudi Arabian products, (Table 7). ASEAN consumers can now buy cheaper petrochemicals, which will expand the final products market, in return for the postponement of national petrochemical projects. With the exception of Singapore, the other

TABLE 7 PRICES OF THREE PRODUCTS IN SOUTH EAST ASIA

(US$ a tonne cif)	LDPE	HDPE (injection moulding grades)	PP (Yarn/injection grades)
1983 (Sept-Dec)	900	830	850
1984 (Jan-Mar)	800	740	830
(Apr-June)	750	710	810
(July-Sept)	650	640	780
(Oct-Dec)	560	620	680
1985 (Jan-Mar)	520	580	660
(Apr-June)	650	580	670

Source: Far Eastern Economic Review, June 20, 1985.

four can be complementary with Saudi Arabia for a while, in contrast to the north eastern states. It will not be too late for ASEAN gas producers to build a petrochemical complex after their domestic market for chemicals is expanded enough to accept its products.

CONCLUSION

The current interest in petrochemicals has concentrated around the new export of Saudi Arabian products. In fact, the fears of a Saudi Arabian product invasion has shaken the international petrochemicals market even before Saudi shipments began in earnest, and its effects have not been absorbed by some markets. The EEC has had recourse to protectionist action, imposing import tariffs on Saudi exports. Nevertheless, Western protectionists have not driven low-cost products east as was predicted by some. Ironically, a considerable portion of the new petrochemicals has been redirected to the west, where about 1 million tonnes of ethylene capacity was withdrawn in the first half of 1985 by a series of accidents at chemical plants. Contrary to forecasts of a year or so ago, the international petrochemical market has firmed up to date. Though much publicized overcapacity remains, demand for petrochemicals has again been growing at a rate higher than GNP. Higher demand increase is the best cure for the overcapacity-ridden industry, though the cause of recent demand recovery is yet to be fully identified. Possibly the single most important encouraging factor for the industry is a fall in oil prices over the past few years which has been regenerating the competitiveness of petrochemicals vis-à-vis alternative products.

The immediate future of the petrochemical industry is full of unknowns in the face of an apparent American economic recession and the lowering of economic growth rates in American-dependent North and South East Asian states, especially the NICs. From a long term point of view, the petrochemical industry is coming of age, but it is not as mature an industry as steel and it lacks the innovative capabilities for the development of new products which could lead to the expansion of the petrochemical market. As for the entry of new producers "putting the

evolution of the international petrochemical business into perspective, Saudi Arabia and other Gulf nations (including Kuwait, the United Arab Emirates and possibly Iraq) really just represent the spearhead of an inevitable and irrevocable shift in production location."[18]

Established and prospective petrochemical producers in gas-rich countries will develop their industry, grasping most of the incremental demand for commodity chemicals. They should nevertheless be able to co-exist with traditional producers in developed countries, sharing markets through the horizontal division of production.

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